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Brophy's Motivation to Learn: CLASSROOM APPLICABILITY

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Brophy's *Motivation to Learn:* CLASSROOM APPLICABILITY

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ABSTRACT

Jere Brophy's *motivation to learn theory*, as supported by his theory of learning communities strongly implies that the average K-12 student can be motivated by a teacher to strive to learn academic material, is the focus of this study's investigation.

Through the process of philosophical inquiry, this study offers a constructive critique of Brophy's public school *motivation to learn* theory and his ideal *learning communities* as it applies to the pedagogy of teachers. The study will show that while Brophy claims that his learning community supported by an "authoritative" teacher is a necessary condition for successfully socializing motivation to learn as a disposition, his motivational theory does not require this community. Dewey's conception of "freedom" is used to explore how students might adopt motivation to learn as a disposition. The study concludes that Brophy's theory is only partially useful to typical classroom teachers attempting to foster students' motivation to learn.

Keywords: motivation to learn, peer group theory, learning community, professional development, socialization, pedagogy, Dewey, disposition, habit, character trait.

DEDICATION

Quiet pools of reflection often precede storms of activity.

To my family, for all the love, joy and support they give each and every day.

Especially to Jere Brophy, for the immeasurable contribution his work has made to my own classroom teaching practice.

Thank you.

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As with any meaningful endeavour, the journey to complete this thesis was not made alone. There are several people I would like to thank. Without the guidance, advice and mentorship of Dr. Fredrick S. Ellett, Jr., this thesis very literally would not have been possible. His efforts to improve my thinking, writing and research were invaluable. I would like to thank Dr. Goli Rezai-Rashti for her contribution as thesis editor and co-supervisor during the writing process, and equally importantly for her mentorship during my master's course work. I would also like to thank William Pulling, a fellow teacher and master's student was instrumental in securing resources for this thesis while I worked overseas in China. Finally, I wish to thank my many teaching colleagues and friends who took the time to discuss motivation and teaching, listened attentively and offered words of encouragement allowing the ideas for this thesis to take shape.

PREFACE

How does a private school computer science teacher come to investigate philosophical issues around classroom teaching and in particular student motivation and learning? It probably started before I became a teacher. My father always said that "anything worth doing was hard". Like many teenagers, I found high school math and science difficult. Dad offered words of encouragement and wisdom stating that to learn to love anything you started small, liking perhaps just one aspect of the difficult task ahead. He followed up with practical advice to set reasonable goals, and make some effort to progress each day until the job was done. During another series of conversations with my father, I was persuaded that my chosen university path (liberal arts - theatre to be exact) was in desperate need of a 'back up plan'. As Dad said, "they don't call them starving artists for nothing". As a result I chose Computer Science followed by teaching. Many years later, I would wonder at how I came to love teaching Computer Science, arguably a difficult subject to like never mind love. During my teaching career I have had a whole range of students take my computer courses. Some were highly motivated, some were motivated at times, and others seemed unmotivated to learn the subject matter. Frustrated with low enrolment and spotty performance by some of my students I sought out better pedagogy. Students liked to play games, so we programmed games. Students found programming language syntax onerous, so we learned Alice 2.0 (a friendlier introduction to programming than traditional or industrial languages). Fewer girls seemed interested in computer courses than boys, so I researched papers on gender differences in computer science and found the problem systemic. The changes I made to pedagogy as a classroom teacher were only ever partially successful. Teaching is hard and definitely worth doing well – thanks Dad for all your advice. Perhaps the answers were not to be found only in pedagogy but in motivating students to learn hard things?

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CHAPTER 1

THE PROBLEM OF MOTIVATING STUDENTS IN CLASSROOMS

In one of Howard Gardner's more recent books *The Disciplined Mind: Beyond facts and standardized tests, the K-12 education that every child deserves*, he states that,

> Educators' understandable focus on cognition has sometimes had the unfortunate consequence of minimizing awareness of other equally important factors. Probably the most crucial is motivation. If one is motivated to learn, one is likely to work hard, to be persistent, to be stimulated rather than discouraged by obstacles, and to continue to learn even when not pressed to do so, for the sheer pleasure of quenching curiosity or stretching one's faculties in unfamiliar directions. (2000, p. 76)

The problem of how to motivate students has not been ignored, yet "the study of motivation is largely carried forward without using the term 'motivation' (or 'motive')" (Ellett & Ericson, unpublished, p.2). Many of the classroom management strategies teachers employ daily could be described as behaviour management. Yet it is perhaps also fair to say that motivational strategies in schools have largely been the 'stick and carrot' variety reflecting traditional behavioural approaches using rewards (grades) and withholding rewards (grades) when students do not perform (Brophy, 2004, p.5). Educational institutions are affected significantly by the assumptions of the cultures in which they find themselves and have little choice but to embody or struggle against those values (Gardner, 2000, p.97). Arguably behavioural motivational theory has dominated school culture.

While there may never be a direct route from scientific discovery to an educational practice (Gardner, 2000, p. 84), educational psychology research in the past two decades has taken on a cognitive focus. The cognitive revolution ushered in a set of new ideas that have powerful educational implications (Gardner, 2000, p. 69). Many researchers now believe that learners are best served when their motivation is intrinsic (Gardner, 2000, p. 76). Yet in Ontario Canada many courses of study, many learning activities and teacher-student interaction, are a direct result of (or heavily influenced if

you prefer) mandated Ministry of Education curriculum. Brophy convincingly argues (and my own anecdotal experience agrees) that the traditional school culture of mandated curriculum creates a clear stumbling block to the application of purely intrinsic student motivation within classrooms, primarily because teachers are obligated to teach the curriculum, which is not always appealing to students.

The problem of motivating students to learn course content is not new. John Dewey, in *Experience & Education*, explored the implications of student motivation in terms of student growth.

> The belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative. Experience and education cannot be directly equated to each other. For some experiences are mis-educative. Any experience is mis-educative that has the effect of arresting or distorting the growth of further experience. (Dewey, 1938, p. 25)

While Gardner (and others) claims that an intrinsic motivational theory best suits student learning, Dewey appears cautious. There are clearly times in our lives where we must do something for our greater benefit that is not immediately enjoyable or interesting. In the case of the spoilt child,

> The effect of overindulging a child is a continuing one. It sets up an attitude which operates as an automatic demand that persons and objects cater to his desires and caprices in the future. It makes him seek the kind of situation that will enable him to do what he feels like doing at the time. It renders him averse to and comparatively incompetent in situations which require effort and perseverance in overcoming obstacles. (Dewey, 1938, p. 37)

Dewey discusses experience at length noting how people, environments and activities interact with one another to from positive (or not so positive) learning experiences. It is not possible in the traditional classroom (school) setting to cater to every student's desires. Edutainment is not a long term solution. Clearly purely intrinsic motivational efforts are not enough. Yet extrinsic rewards (grades and awards) are also problematic, "*from the standpoint of most motivational theorists, this is control of behaviour, not*

motivation of learning," (Brophy, 2004, p.154, original emphasis). Furthermore argue that,

> In the Western tradition, a rational person can order a set of desires into intrinsic desires and extrinsic desires. Indeed, it has been argued that, for the extrinsic desires to be justifiable, they must serve as means to satisfying intrinsic desires. (Ellett & Ericson, 2010, p. 347)

In the broadest sense we are all motivated by our desires. So the interplay between intrinsic and extrinsic motivation is complex, such that even extrinsic rewards may be considered to be partial fulfillment of intrinsic desires. Perhaps a different conception needs to be considered?

> Cognitive psychologists believe that individuals have ideas, images, and various 'languages' in their mind-brain; these representations are real and important and are susceptible to study by scientists and to change by educators ... these scientists searched for the rules that the students were following, the strategies they were employing, the ways in which they interpreted lessons, test scores, parental reactions, and their own performance. (Gardner, 2000, p. 67-68)

This particular perspective is hopeful. Surely learning in terms of Dewey like growth is supported by a theory that allows mental representations to be influenced by educators? "Everything depends upon the *quality* of the experience which is had. The quality of any experience has two aspects. There is an immediate aspect of agreeableness or disagreeableness, and there is its influence upon later experiences" (Dewey, 1938, p. 27, original emphasis). It is from our experiences that we learn about the world around us, about ourselves and others and motivating students to learn is closely tied to managing students' experiences in ways that promote student learning.

OVERVIEW TO THE RESEARCH PROBLEM

According to Maslow we are all called to be and do something. He calls this "the need for self-actualization. -- Even if all these needs are satisfied, we may still often (if not always) expect that a new discontent and restlessness will soon develop, unless the individual is doing what he is fitted for...What a man can be, he must be. This need we may call self-actualization" (Maslow, 1943). Yet who can tell what a student can be?

Without a great deal of effort and perseverance on the part of the student what he or she could be is a mystery, perhaps even to him or herself. Students' academic success then is plausibly more an issue of motivation rather than ability (at least in the early years). Nor should success be predicated upon student initial likes or dislikes or even of initial talent. "We must guard ourselves against the too easy tendency to ... make a sharp dichotomy between 'cognitive' and 'conative' needs. The desire to know and to understand are themselves conative, i.e., have a striving character, and are as much personality needs as the 'basic needs' ... [p. 386]," (Maslow, 1943). Both intelligence (cognition) and emotion play an important role in human learning (Gardner, 2000, p. 77). Interestingly, "most behavior is multi-motivated. Within the sphere of motivational determinants any behavior tends to be determined by several or all of the basic needs simultaneously rather than by only one of them" (Maslow, 1943). This idea that people are driven by multiple (and perhaps competing) motives turns out to be a very powerful one.

Through the process of philosophical inquiry, this study seeks to offer a constructive critique of Brophy's *motivation to learn* theory and classrooms as ideal *learning communities* as it applies to the pedagogy of practicing teachers, particularly at the K-12 level, as presented in *Motivating Students to Learn* (second edition). Brophy's book is intended as a discussion of selected motivational theories deemed useful to K-12 public school teachers in North America. The framework he uses for his overall discussion of motivation is *expectancy x value theory* which can be considered functionally equivalent to Ellett and Ericson's discussion of *want-belief theory* of motivation (discussed in Chapter 3 of this study). Specifically, Brophy's "chapter 2 focuses on the social context" while his "chapters 3 to 5 address expectancy aspects" and "chapters 6 to 10 address value aspects" (Brophy, 2004, p. 24). This study will focus in particular on Chapter 2 which outlines Brophy's conception of a learning community, and Chapter 9 which delineates his conception of motivation to learn. He states strongly that his motivation to learn theory (and other motivational efforts with regards to motivating students to learn) is supported by an ideal learning community made up of a class of students and their teacher. While Chapter 2 and 9 present his core arguments,

Brophy's supporting *arguments for his motivational theory are found scattered throughout his text*, making it difficult at times for the casual reader to differentiate his theory and advice from the other motivational theories presented. Brophy cautions us, however, that "nothing should be inferred from this order concerning the relative importance of the content addressed in the various chapters. Each chapter contributes to a network of ideas that, taken as a whole, constitutes a comprehensive approach to motivating students," (Brophy, 2004, p. 152) culminating in his motivation to learn theory. While Brophy even-handedly presents other motivational theories, he presents *motivation to learn* as a kind of synthesis of many theories useful to public school teachers. He contrasts his motivational theory with these other theories to demonstrate how his theory is more appropriate for classroom use than traditional motivational theories which were not, strictly speaking, developed for use by educators in the classroom. Only when our students are sufficiently motivated to learn will teachers and parents see our students succeed and grow to their full potential.

PROBLEM STATEMENT

I shall assume that Jere Brophy's conception of *motivation to learn* theory has practical applications in modern North American classrooms for the average student and that these classrooms are transformed into ideal learning communities that support his theory and other motivational efforts by teachers. It must be noted that Brophy's motivational theory is not a general theory of motivation, but specifically a theory of how public school teachers may successfully motivate the students within their classrooms. I shall take it as my principal task to develop a constructive critique of the strengths and weaknesses of Brophy's motivation to learn theory and his conception of learning communities as it applies to classroom teachers from kindergarten to grade 12.

BROPHY'S SIGNIFICANCE AND INFLUENCE

> Students have many responsibilities with regard to their learning. Students who make the effort required to succeed in school and who are able to apply themselves will soon discover that there is a direct relationship between this effort and their achievement, and will therefore be more

> motivated to work. There will be some students, however, who will find it more difficult to take responsibility for their learning because of special challenges they face. The attention, patience, and encouragement of teachers can be extremely important to the success of these students. However, taking responsibility for their own progress and learning is an important part of education for all students, regardless of their circumstances. (Computer Studies Curriculum document, 2008, p.4)

The message from the Ontario Ministry of Education is clear: all students must eventually come to take responsibility for their own learning. I can think of no one better suited to helping teachers tackle the issue of student motivation than Jere Brophy. His discussion of motivational strategies applicable to classroom teachers offers valuable insights into the challenges teachers face as they attempt to influence students to take ownership of their own learning. He was awarded "the 2007 E. L. Thorndike Award from Division 15 of the American Psychological Association ... He served on editorial boards for many of the most prestigious journals in the field of education and was a prolific author having written over 300 articles, chapters and books" (Robinson, 2009, p.292). Jere Brophy's contribution to the field of Education is truly staggering.

Thomas Good, a long-time friend and collaborator remarked:

> Our first common research activity evolved around a disagreement of the extent to which teachers would vary in how they interacted with students they believed to be more and less capable. This dispute led to a spate of articles that in the end proved both of us right and wrong. Some teachers exhibit markedly different behavior and opportunities based upon perceived level of student ability – others do not. (Robinson, 2009, p.295)

Thomas Good and Jere Brophy collaborated on a highly influential text (the last was its eighth edition) titled *Looking in Classrooms*. In this text, Brophy also presents his theory of *motivation to learn*. In a sense Brophy has been developing his theory over many years. "Jere had the gift of being able to look at the hundreds of correlations that were obtained in these studies and see important patterns. He was able to weave these correlations, and the patterns they formed, into a series of findings about effective teaching" (Robinson, 2009, p.297). These studies were conducted in Elementary and Jr. High School.

Beside Jere Brophy, I am standing in the shadow of an educational research giant. When attempting to make sense of a giant in the field of educational research it is a good idea to seek out other giants. So as Aristotle recommends, I stand on the shoulders of others. I owe many of my insights on motivation, group theory and educational philosophy particularly to my thesis supervisor Fredrick S. Ellett Jr., who directed much of my reading on philosophical issues. I owe much of my current pedagogical understanding to John Dewey, A.H. Maslow, Jere Brophy, Mitch Albom, and many of my insights into group social dynamics to Judith Harris. There are countless other authors of educational research articles, large and small that either coalesced or dissolved various ideas I had along the way. As a result, this study is as much a product of reflective thinking as it is a product of any research on motivation itself.

THESIS RATIONALE

Considering that Jere Brophy was well respected and highly influential in the area of Educational Psychology and considering the plethora of articles, chapters and books he has written on the subject it is time to examine whether or not his ideas, founded on research from Elementary and Jr. High School classes are applicable to grades 9 to 12 (High School). It seems appropriate therefore that a sustained critical review of the strengths and limitations of his motivation to learn theory for in-service teachers (working in public or private schools accredited by the Ministry of Education) be undertaken.

Even though I acknowledge Brophy's important contributions to Educational Psychology in the area of motivational theory as it applies to teaching and learning, I will argue nevertheless that while his theory offers teachers a wide range of motivational strategies that may help students learn academic material, *motivation to learn* and its support mechanism, idealized learning communities, taken together as Brophy envisions embodies a level of complexity that makes the theory unwieldy in daily classroom practice.

I will argue further that, learning communities rather than being the necessary condition of motivation to learn theory Brophy claims, are plausibly the product of teachers' successful motivational efforts in classrooms (within public or private schools). This view may simplify teachers' workload, allowing them to focus on motivational issues alongside regular classroom management and pedagogical issues in the course of their daily work. It is hoped that the critical account provided here will offer new insights into the structure and practical application of Brophy's motivation to learn theory. This study is not intended to be complete or definitive. Indeed, I hope to provide here but a small but crucial point of departure for further reflection and research regarding motivating classrooms full of students to learn the given curriculum with alacrity.

METHOD

The method adopted to initiate this study was to pursue a philosophical inquiry, subdivided into two distinct areas. The first area of inquiry focused on relevant literature: (1) Jere Brophy's (2000, 2004) texts as well as several of his essays; (2) educational research reports and journals detailing (or summarizing) various enquiries into student motivation and learning; (3) contemplating various philosophical and epistemological enquiries into fundamental and enduring educational issues relevant to understanding motivation (Aristotle, Kant, Dewey); and (4) written works related to motivation and social dynamics, socialization and education theory in general (Maslow, Gardner, Harris).

For the second area of enquiry I chose to observe and reflect on my own interactions with students. During my year and a half of living and working in Dalian China, I was privileged to be the academic and university counsellor to 250 graduating Chinese students at an International School offering the British Columbia "Dogwood" diploma. The school offered all B.C. courses in English from Canadian government approved teachers with a total student population of 2000. In my capacity as academic counsellor I managed student timetables for grades 10 to 12. Collecting information in this context was vital as conversations evolved regarding students' course selection and future

postsecondary choices. Students would come to me for a variety of reasons: sometimes to change courses, to discuss teachers, or to discuss future university and course options. Students discussed at great length their plans for the future or their lack of future plans, or fears relating to lack of ability, or conflicts with parents, or conflict with specific teachers or peers. The job entailed a great deal of unexpectedly personal discussions with students trying to sort out their futures. Few of these students followed their own future plans – most followed their parents' plans for them. Some students resisted these plans, and for all their resistance appeared more apathetic and more similar to their Caucasian counterparts in schools I had taught at in Canada. As a matter of course, I came to know my most 'difficult' students by speaking with teachers, and parents regarding current course choices and post secondary educational choices. My discussions with parents were always through school secretaries acting as translators. The impressions and epiphanies that were generated as a result of these conversations were of immeasurable reflective value.

As I read, repeatedly, Brophy's work *Motivating Students to Learn*, I discovered to my delight that I had been following his advice for many years already – at least the pedagogical parts of it. When I arrived home to Canada and began teaching high school computer science once more I put into practice those motivational ideas that I felt were useful and that matched my evolving understanding of Jere Brophy's learning community and his conception of motivation to learn. Ever mindful that I was not, strictly speaking, doing a human study I did not ask questions, make notes on or otherwise collect data for my thesis in any formal way. In China and in Canada my students never completed surveys nor did I discuss issues, theories or ideas related to my thesis.

THESIS ORGANIZATION

This thesis is divided into chapters as follows:

1. Introduction. Here the reasons for considering the importance of motivating students to learn academic material as presented in classrooms was introduced, along with underlying assumptions and rational for the thesis. The setting of the

problem was given along with statements and an explanation of the method used to examine Brophy's *motivation to learn* theory. Finally, an outline of the thesis structure was presented.

2. Ideal Learning Communities. Chapter 2 provides an in-depth analysis of Jere Brophy's conception of typical public school classrooms as learning communities. Specifically this chapter will show how Brophy argues that learning communities are a necessary condition for any successful implementation of motivation to learn (or related motivational) theory in the classroom. Jere Brophy is mistaken in his claim, overlooking a critical new theory in the area of socialization, and is unclear in making process and product distinctions. It is entirely plausible that his conception of learning communities is a product of (rather than a process towards) motivation to learn theory.

3. Motivation to Learn. Chapter 3 will explicate Brophy's *motivation to learn* theory, illustrating its strengths and weaknesses as a tool for motivating students within classrooms. His theory contains two complementary aspects, a situational specific behavioral state (made up of complex set of skills, insights, values and dispositions) and the second aspect is a potentially enduring set of dispositions toward lifelong learning. In the first aspect, properly motivated students will always try to gain the intended learning benefits. In the second they will presumably be predisposed to consider all learning of at least some value. How this complex web is conveyed to students is the chapter's primary focus.

4. Applicability in computer science and math classes. Chapter 4 explores the potential applicability of *motivation to learn* and the creation and maintenance of Brophy style *learning communities* in elementary math classes and high school computer science classes. Elementary math classes illuminate various problems with Brophy's assumptions regarding both learning communities and the applicability of *motivation to learn* as a one-teacher to many-student process. Elective high school computer science classes typically suffer from a bi-modal

distribution of grades, casting a critical eye on Brophy's assumptions regarding the makeup of learning communities and student retention even with the application of *motivation to learn* strategies.

5. Summary and conclusions. The basic rational for this study, considering the important contributions of Brophy to teachers' understanding of motivation in typical public school (or similar) classroom environments while teachers attempt to engage students in learning in a learning supportive community environment is summarized and re-assessed. Implications for teachers and pedagogical practice are considered and recommendations for future study are given.

SUMMARY

I began this chapter by quoting Howard Gardner on the importance of motivation in education, in part to imply strongly that the issue of student motivation and dispositions students hold towards learning is a serious topic worth considering in its own right. While this topic is not new, it has been until recently obscured in the writings of various educational thinkers. Dewey himself discusses student motivation to learn in terms of experience, and growth. Yet, one might argue that Dewey was not discussing issues related to student motivation since he does not mention motivation directly, but rather discusses the importance of student experiences. I would argue that this simply supports my view that discussions that are often of pedagogical importance imply strongly a hidden discussion of how best to motivate students to learn academic material presented in classrooms.

Enter Jere Brophy, and like minded educational psychologists. Brophy makes explicit statements regarding motivational research sifting each in turn and presenting only those which he feels has some relevance to teachers in K-12 classrooms. His theory of *motivation to learn* and his conception of *learning communities*, as delineated in *Motivating Students to Learn* (second edition), represents a tour-de-force of motivational

research and its potential application to education practice. He is a giant in the field of Educational Psychology research and his ideas relating to effective classroom teaching should be and have been taken very seriously.

Whenever innovative educational ideas emerge it is prudent to rigorously test them against the realities teachers face in the classroom every day. *Expectancy x value theory* as the theoretical basis for Brophy's *motivation to learn* theory as well as the organizational structure of his text plays an important role informing the reader's understanding of Brophy's conceptions. It is important to be clear how students come to expect to be successful given appropriate levels of effort and how students come to value lessons and activities teachers present and evaluate as a means of measuring student ability, skill and knowledge. *Motivation to learn* is a complex web of ideas, weaving together many aspects of learning, yet primarily focusing on developing a student's dispositions towards engaging in academic material with the intent of gaining the intended benefits. To support this teacher lead endeavour, Brophy offers his conception of the ideal learning community that acts as a foundation for all motivation to learn efforts. The following chapters of this study make every effort to unravel this interconnected web of ideas and reveal both the strengths and weaknesses of Brophy's approach to motivating students to learn.

CHAPTER 2

LEARNING COMMUNITIES DEFINED AND EXPLORED

Jere Brophy presents his motivational theory in two parts. It is important to note that his theory has limited scope, focusing on student motivation within the typical classroom, where he studied mainly K-8 students. The first is the kind of learning environment that public (and many private) school teachers should strive to create and maintain such that the classroom environment fosters each student's *motivation to learn*. This chapter will flesh out what kind of learning environment Brophy recommends teachers create, explore the preconditions Brophy's learning community satisfies, and how it supports his motivation to learn theory. Specifically this chapter will explore the plausibility and limitations of Brophy's learning environment on students' motivation to learn by examining his assumptions regarding socialization theory, and comment upon how likely the successful implementation of this type of community might be at different grade levels.

First and foremost, a learning community of students in a classroom should foster the disposition to learn. Specifically this community should support the development of "life-enhancing dispositions in students" (Brophy, 2004, p.17) and to this end Brophy requests that teachers make the best of their "opportunities to stimulate and socialize their [students] motivation to learn" (2004, p. 18).

The steps to establishing a Brophy style learning community boil down to the following three features which are outlined and explicated below:

a) Make yourself and your classroom attractive to students (2004, p. 28).
b) Focus their attention on individual and collaborative learning goals and help them achieve these goals (2004, p. 28).
c) Teach things that are worth learning, in ways that help students appreciate their value (2004, p. 28).

In earlier related work on motivation and classroom learning Brophy states "to be motivated to learn, students need both ample opportunities to learn and steady

encouragement and support. Such motivation is unlikely to develop in a chaotic atmosphere, so it is important to organize and manage the classroom as an effective learning environment," (Good & Brophy, 2000, p. 221). Learning communities must therefore be effective learning environments. For typical public school classroom environments to be effective, they should contain four features. According to Good and Brophy, who rely on the research of Battishtich et al. (1999), the four important aspects for communities of learners are: (1) warm, stable, supportive relationships; (2) social and ethical dimensions of learning; (3) the role and prevalence of intrinsic motivation; and (4) active construction of meaning (2000, p. 222-223). Points (a-c) and (1-4) are not incompatible, demonstrating a long history of developing ideas around Brophy's conception of learning communities. For example, point (a), "attractive room and teacher" might be accomplished through points (1-2). Point (b) "learning goals" might be accomplished through point (4) "active construction of meaning". Points (c) "worthwhile content" might be accomplished through point (3) "intrinsic motivation". Brophy and Good's work *Looking In Classrooms* (eighth edition) sets the stage for both Brophy's conception of *learning communities* and his *motivation to learn* theory in *Motivating Students to Learn*. In the text we are primarily examining here, *Motivating Students to Learn*, Brophy concludes his chapter on learning communities with this question, "why will the failure to follow the advice in this chapter negate the effectiveness of most if not all of the motivational strategies discussed in the rest of the book?" (Brophy, 2004, p. 51). This question implies that a strong connection between learning communities and motivating students to learn exists, but in his previous work with Thomas Good four years earlier, Brophy does not draw such a strong line in the sand. In philosophical terms, learning communities are a necessary condition for motivation to learn.

Before continuing with the examination of points (a) through (c), the ambiguity between the process and product of each is worth considering. In each part Brophy, in all likelihood, intended to draw only a necessary link between learning communities and other motivational strategies. He did not intend to imply that his learning community was an end in itself. In part (a) a teacher can do certain things that might help make the

room attractive (a process), but the actual perception of the students (the product) is unclear. In part (b), learning goals can be set (a process) but their achievement is the product of many lessons not just the environment. In part (c) the teacher presents worthwhile content, but again the actual student learning is the product. Students may be 'helped' to appreciate the value of the goals, but the actual appreciation is a product of accepting the teacher's values – a free choice at best. In all three parts above it is most plausible that Brophy's learning community is intended as a support process only. If the learning community not only set out the parts (a-c) above as a process but also as the product, the work of motivating students would likely also be accomplished. Given Brophy's significant discussions surrounding his motivation to learn theory in chapter nine of *Motivating Students to Learn*, and his admonishment that the learning community must be established *in order to* support other motivational strategies, he claims powerfully that a learning community is necessary, but not sufficient for motivating students to learn. This precondition to motivating students to learn, as we will see shortly, boils down to a supportive environment.

In part (a.) above, Brophy advises that teachers should cultivate and display the attributes of individuals who are effective as models and socialisers (2004, p. 28) and get to know students as individuals. Teachers should help students to know the teacher as a human being and help students to know one another also. Furthermore, teachers should create an inviting physical environment in the classroom (2004, p. 28) and perhaps most importantly help students learn classroom expectations rather than threaten or punish them (2004, p.29). Specifically "A dependable classroom structure provides students with the information and assistance they need to enable them to learn successfully" (2004, p. 30). It is specifically the process (a structure of support) for the eventual product (learning) that Brophy is concerned with here in regards to teachers making their classrooms attractive.

Examining part (b.) above we look at the impact of learning goals. Learning communities according to Brophy also thrive on learning goals and students' achievement of these goals. This point makes it appear that the learning community both thrives on and achieves goals – a kind of cycle that self perpetuates as one goal is

achieved another is taken on and the successful completion of goals makes the learning community stronger. In his chapter focused on learning communities Brophy states that by helping students frame their learning goals, students will take more responsibility for managing their own learning (2004, p. 32). This is the intended result of the combination of Brophy's learning community along with his motivation to learn theory which he explicates in Chapter 9 of *Motivating Students to Learn*, but here he seems to imply that both are strictly done as a result of his learning community. This kind of argument confuses the process-product distinction. Either the learning community supports achieving goals, or it is a product of achieving goals. Confusion arises when one realizes that should students take responsibility for learning, the causal link between Brophy's learning community and his motivation to learn theory becomes suspect. Said another way, when students individually take responsibility for their own learning, then it is more plausible that student learning will occur despite the environment, or at least the environment stops playing a pivotal role as students seek out environments suitable to their own particular learning styles (such as a quiet library rather than a classroom). This confusion also points to the possibility that Brophy has mistaken the Learning Community for a process, when it is potentially the product of his motivation to learn theory.

To expand on this point, examine the following list of instructional goals to be fostered in a (public or typical private school) learning community: knowledge, skills, attitudes, values, and dispositions. Teachers at all times should keep the following instructional elements in mind: content sources, discussion questions, activities, assignments and assessment methods (Brophy, 2004, p. 33). The most plausible explanation is that Brophy instructs the teacher to set the environmental factors that are most suitable to foster student learning. He further confuses learning communities with motivational strategies by commenting, "the best learning activities are built around powerful ideas" (Brophy, 2004, p. 35). Brophy continues arguing that learning activities are likely to have maximum impact when the following criteria are met: clarity of purpose, engaged students, scaffolding, feedback, and student reflection and sharing of insights (2004, p. 35). Yet again, it appears that Brophy intends to imply that the learning community can

itself motivate student learning as both a process and a product. After all what are engaged students, if not motivated students? However it is again most plausible (given his extensive motivation to learn theory) that this is not his intention. The most likely explanation is that he simply wishes to stress the important role his ideal learning community plays in supporting a positive learning environment. The environment does not give students their reasons for valuing the lessons, activities, skills or the knowledge itself. The confusion arises because Brophy does not clearly separate for the reader the process students go through to value and learn what is taught while presenting his conception of a learning community which he sees as the necessary foundation of his motivation to learn theory.

Examining part (c.) above, learning communities are realized through content worthwhile learning. Here Brophy's views boil down to authentic activities (2004, p. 39) that are real world activities or simulations of real life activities. This kind of learning activity echoes John Dewey's classic recommendations found in his text *Experience and Education*, "It is a sound educational principle that students should be introduced to scientific subject-matter and be initiated into its facts and laws through acquaintance with everyday social applications" (1938, p. 80). Skills are practiced within the context of a whole-task application rather than isolated tasks (Brophy, 2004, p. 39). Most importantly, Brophy advises teachers to teach for understanding where students can apply it in problem-solving or decision making contexts (2004, p. 40). Here, at least, Brophy does not confuse process and product. It is clear that he intends only that teachers select and present worthwhile content, and does not suggest in any way that students will simply learn it as a result.

Examining part (c.) again, 'helping' students to appreciate what they are learning, is problematic since it is a critical component of Brophy's motivation to learn theory, and should not be considered a true part of his definition of a learning community. The most probable explanation of why he outlines 'helping' students to appreciate what they are learning in this chapter on learning communities is to foreshadow his theory of motivation to learn and to tightly bind his theory to the learning community. It seems like a 'sleight of hand', to build in the requirement of motivational / persuasive attempts

by the teacher to 'help' students see what they are learning as worthwhile as a part of the community itself. As we will see later, it would be more useful if we code selecting 'worthwhile content' and this kind of 'helping' with a type of leadership role to be played by the teacher as a member of the community. In a sense, selecting worthwhile content and helping students see its value, is Brophy's guiding principle for public school teachers to consider at all times.

PRECONDITIONS FOR STUDENT MOTIVATION TO LEARN

Brophy claims that a learning community is an essential requirement to any successful motivational efforts that attempt to instill in students a love of learning as a kind of disposition. His theory *motivation to learn* relies upon the kind of classroom environment in which students find themselves. His work over many years remains relevant and compelling.

> Between 1969 and 1983, Jere Brophy and his colleagues conducted more process-outcome studies than any other researcher. Their first studies coded a variety of teacher classroom practices and then correlated these practices with measures of student achievement gain. Jere and his colleagues also computed the correlations between students' classroom behaviors and their achievement gain. These correlational studies were conducted in both elementary and junior high grades and involved both reading and math achievement. (Robinson, 2009, p. 296-297)

These studies are also known as process-product studies, and as such illustrate the sheer amount of data Brophy collected to support his powerful and persuasive argument regarding the usefulness of learning communities in terms of their necessity as a pre-condition for any motivational theory to take hold in a classroom. It was during Brophy's analysis of all these data when he developed the phrase "'teach in small steps' to describe the instructional behaviours of those teachers whose students had a high proportion of correct responses" (Robinson, 2009, p. 297). The sheer amount of data, and the leap of intuition that Brophy made to connect the process of teaching with the product of student achievement is impressive. Indeed these two ideas for Jere Brophy are tightly coupled within the context of the elementary and middle school classrooms in

which he conducted the bulk of his research. In earlier work, co-authored with Thomas L. Good, the idea of a community of learners was explored as an aid to motivation. "In addition to cultivating positive relationships with each student as an individual, teachers can nurture identification with school and motivation to learn by cultivating the development of caring communities of learners in their classrooms and in the school as a whole" (Good & Brophy, 2000, p. 222). Yet, it also implies that Brophy accepts the idea that individual student-teacher relationships can also support a student's *motivation to learn*.

Indeed, Brophy's strategies for creating learning communities and his reasoning for their importance are compelling. However, the general applicability of his theory regarding the usefulness and practicality of such environments at the high school level is an unresolved issue. A more likely motivational approach for a high school teacher might be an individual student-teacher approach. It will be argued here that Brophy's learning community is much less likely to exist at the high school level for several reasons the most compelling of these will be discussed in the remainder of this chapter.

ISSUES REGARDING SOCIALIZATION AND MODELING

Judith Harris, in her book *The Nurture Assumption*, debunks the popular (and largely uncontested) Western cultural assumption that parents and other adults socialize young people. Since Brophy claims it is the responsibility of the public school teacher to socialize students' disposition to learn, Harris' counter theory regarding how socialization works offers a new perspective of Brophy's student-teacher learning community. Her theory offers a powerful lens in which to examine how Brophy's learning communities might possibly work. We have assumed for years that socialization is something that is done to us (primarily done by adults to children). Harris turns this assumption on its head, by claiming that socialization is something we do to ourselves. The next section of this chapter will focus on her findings where they illuminate Brophy's own theory of learning communities. The implications Harris'

socialization theories have on Brophy's motivation to learn theory will be explored the next chapter.

Who is Judith Harris, and why is her work important to Brophy's learning communities? According to the review on the dust jacket of her book *The Nurture Assumption: Why Children Turn Out the Way They Do*, first published in 1998, "Combining insights from psychology, sociology, anthropology, primatology, and evolutionary biology, she explains how and why the tendency of children to take cues from their peers works to their evolutionary advantage." Harris' theory of group socialization sheds light on many factors of human behaviour that are critical to understanding how students behave in groups and what influence, if any at all, a teacher may have on his or her students. Harris's research and counter theories to psychologies' long standing assumptions and findings regarding socialization in part counter Brophy's notion of a teacher's ability to socialize students, and in part recommends methods that might work in place of Brophy's socialization assumptions.

A fact, not mentioned often by psychologists is that genes do have an impact on intelligence, and just as importantly behaviour is also partly hard wired in the genes. Much of the research on behaviour focused on socialization does not take into account the effects of the genes (Harris, 2009). What is focused on instead is the power that parents have to socialize their offspring. Interestingly, "behavioral genetic studies continue to show that the family home has few, if any, lasting effects on the people who grew up in it" (Harris, 2009, p. 43) and likely any lasting effects can be attributed to shared genes.

According to Harris, B.F. Skinner's problem was primarily that the individual was the focus of his research and the context of the society or group was not seriously considered (2009, p. 128). From an early age humans tend to identify themselves with certain groups. This process is primarily self-catagorization (Harris, 2009, p. 129). Which group or groups a person actively identifies with often is a result of identifying which group(s) is/are salient. A group is salient when its other is present. The most

powerful other is one which is identified as its opposite. In particular, Harris points out that "for children, socialization consists largely of learning how to behave when they're in the presence of other people" (2009, p. 137).

The phenomena of group dynamics Harris identifies as the following (2009, p. 127):

a) Preference for one's own group
b) Hostility towards other groups
c) Between group contrast effects
d) Within group assimilation
e) Within group differentiation

Points (a) and (b) seem plausible. As adults, I'm sure we are all uncomfortable admitting openly that there is any hostility between our own group and any other group. Perhaps over time, we realize that we belong to the human race and this meta-group thinking mitigates our hostility. Alternatively we simply deny its existence. Point (c) is the apparent phenomenon of exaggerated differences between groups or the proclivity to create differences where perhaps none existed between groups (Harris, 2009, p. 130). Point (d) describes the phenomenon through which rules, standards of conduct, beliefs, norms and values are accepted by individuals as the price of willingly belonging to a group (2009, p. 133). Point (e) alludes to the fact that within groups there are individual specializations. Even within a group not everyone knows how to do everything or behaves identically. The implications of point (e) will be further explored in connection with Brophy's theory of motivation as it is applied from kindergarten to grade 12.

"Children get their ideas of how to behave by identifying with a group and taking on its attitudes, behaviors, speech, and styles of dress and adornment. Most of them do this automatically and willingly: they want to be like their peers" (Harris, 2009, p. 158 original emphasis). As we grow up we learn to differentiate more and more. "By fifth grade, children are associating with each other mostly in little cliques of three to nine members" (Harris, 2009, p. 170), but most importantly Harris proposes two ideas. "When a particular social category is salient and you categorize yourself as a member of it – that

is when the group will have the most influence over you" (2009, p. 132) and that socialization is "something that children largely do to themselves, not what is done to them" (2009, p. 158). The corollary contradicts Brophy's optimistic assumption of socialization, "children's attitudes towards schoolwork change if they switch from one group to another over the course of a school year" (Harris, 2009, p.170). According to Harris, teachers have little to do directly with socializing values, beliefs and behaviour of their students. The influence many teachers exert on students is – at best – indirect. Here are some high school examples from my own classes that look like direct teacher influence, but are, more plausibly given Harris' ideas, indirect:

a) Calling on students by name to answer questions
b) Changing where students sit in the classroom
c) Offering positive feedback to individual students
d) Formal and Summative assessment

Calling attention to students who are not paying attention and answering questions in class draws a peer's group attention to them. Over many years in the classroom I have observed that any question asked to a single student is heard by at least part of the group. I have even witnessed students rescuing each other. I ask student Y a simple question to which he/she should know the answer, but do not. I know he/she does not, because the answer was given two minutes ago when Y was not paying attention. The students know student Y was not paying attention, and so student Z blurts out the answer to save student Y the embarrassment of admitting he/she does not know the answer. The student group within the class protect its own members. Calling on students repeatedly may indirectly cause them to focus more in class to avoid embarrassment and ridicule from peers. It does not imply that students will suddenly like the subject or teacher.

In some cases, teachers change where students sit. Since students in large classes of twenty or more form cliques according to Harris, it is not surprising that over a short time, either one of three things happen. The student sneaks back to their original seat,

or they begin to conform to the new sub-group of students, or they become silent and uncooperative. Since students self-select their peer group, forcing students to sit apart can be an ineffectual 'socialization' strategy. "You don't have to actually interact with the members of your psychological group in order to have them influence you" (Harris, 2009, p. 159) and therefore moving students from one seat to another may have little or no effect on student behavior – at least not the intended effect of better grades. "If a child moves into a clique of academic achievers, her attitude toward schoolwork is likely to improve; if she moves out of it, her attitude gets worse" (Harris, 2009, p. 170). By moving a student's seat in the class teachers may indirectly affect that student's disposition towards learning and grades.

Offering positive feedback to students, more often than not happens in public. Quieting a class and focusing their attention on the lesson by reinforcing does work. In my own courses students all have computers. Asking students to focus on the chalkboard takes a few moments. Some students comply immediately. Thanking these students creates a verbal reminder to the group of the expectation. Slowly most of the class cooperates. The last student, who almost never fully cooperates, is often verbally reminded by a fellow student – usually with more force than I as a teacher would dare use. Arguably, "teachers have power and responsibility because they are in control of an entire group of children" but most importantly, "a large part of this teacher's power resides in her ability to put individual children in the spotlight, to make them the focus of their peer's attention" (Harris, 2009, p. 226). A teacher's power (influence) is always proportional to his or her own status as a leader in the classroom.

Good and Brophy acknowledge the complexities within elementary classrooms: "even a seemingly simple aspect of teacher-student interaction can be a complex perceptual problem in a fast-moving, complicated social setting such as a classroom" (2000, p. 24) but they take it a step further claiming, "this lack of awareness is one reason why, in too many classrooms, student gender, race, ethnicity, or culture predict the quality of students' learning opportunities," (2000, p. 24). A more plausible explanation is that the dynamics of the classroom are better explained by Harris' theory of peer socialization. It may be that with a lack of perception comes a lack of leadership on the part of the

teacher, and squandered opportunities to redefine social norms. Here there is a none-too-subtle distinction. In Good and Brophy's version we have better predictors of learning opportunities and in the Harris theory we have opportunities to affect students' dispositions. Interestingly Good and Brophy acknowledge the complexities of the classroom. "Teachers and observers can and do misinterpret classroom behavior ... our beliefs, past experiences, and prejudices can lead us to interpret what we see incorrectly rather than to see, describe, and analyze objectively what really happened" (2000, p. 35). If classroom teachers do not see and interpret clearly, then they may become ineffective as classroom leaders.

The environmental influence Brophy claims that teachers have on students (to model and socialize), may not be the influence we believe it to be. "The trouble is that under ordinary conditions all the aspects of a child's environment are correlated – they all vary together – so it is impossible to tell which aspect of the environment is having the effect on the child" (Harris, 2009, p. 175). In other words, can we say for certain what motivates a child to behave in class? Is it classic parent-child socialization of values? Is it the teacher's personality and pedagogy? Is it the peers in the class or the school? Is it the effects of the genes passed from parent to child? It seems that Harris suggests that we will not be sure until psychologists untangle the various environmental and genetic influences (2009, p. 176). These important considerations are largely ignored by Brophy and negatively impact the basic assumption that all teachers can create an effective learning community, an environment which Brophy's motivation to learn theory requires by definition.

Effective classroom management is a fundamental part of Brophy's strategy to create ideal learning communities. Regrettably, Brophy's undue reliance upon Baumrind's research for classroom management strategies effectively undermines the following advice. "*Use authoritative strategies that help students to become active, self regulated learners*; avoid both authoritarian strategies that produce passive obedience rather than thoughtful regulation, and laissez-faire strategies ..."(Brophy, 2004, p. 30, original emphasis). In various places throughout his text Brophy makes reference to this strategy. Again Harris has taken pains to explain why Baumrind's research is faulty.

The divide and conquer method of looking at data, as Harris explains, is problematic in that it can create from very weak correlations, statistically significant ones: "often, the benevolent effects of Just Right [authoritative] parenting are found only for white kids ... I do not believe that parents have consistent child-rearing styles, unless they happen to have consistent children" (Harris, 2009, p 45). The data Baumrind offers are suspect, and the conclusions that Brophy asks teachers to draw, persuading them to use only authoritative strategies leaves a wide margin of error in terms of classroom management that Brophy does not acknowledge.

PLAUSIBILITY AND APPLICABILITY AT DIFFERENT LEVELS

Extrapolating from Harris it is possible to conceive of where Brophy-learning-communities and Brophy style *motivation to learn* fits within the public school K-12 educational student experience. As envisioned and promoted, Brophy-learning-communities are more likely to be successfully implemented at the elementary and middle school level of education than at the high school level. In part this is because younger students are less likely to choose their own peer groups, or stick with a particular group. In part this is due to enrollment size and the influence that adults may still have on children. While Harris is likely correct that in the long-run children turn out they way they do because of peer-group selection, it is still plausible that elementary students are young enough to be directly influenced by adults who spend significant amounts of time in their presence. Another likely reason has to do with student enrolment. Classroom populations at the elementary and middle school level are often more homogeneous, than classroom populations found at the high school level.

Brophy's conception of a learning community may be partially supported by Harris. It is plausible that Brophy would agree that the best teachers are classroom leaders. As leaders they are responsible for presenting worthwhile content and helping students see its worth. Harris thinks she can distinguish three important features of gifted teachers (2009, p. 230):

1. A leader can influence the group's norms and attitudes adopted by its members
2. A leader can define boundaries, who is 'us' and who is 'them'
3. A leader can define the stereotype the group has of itself

Before getting too excited, however, Harris admits "don't ask me how they do it; I don't know" (2009, p. 230). Yet, it is plausible that one method would include making explicit what is implicit in classroom teachers' practice. Good and Brophy outline successful classroom practice at length in *Looking In Classrooms*, but classroom practices is not the focus of Brophy's *Motivating Students to Learn*. Harris goes on at some length giving examples of teachers who seem to be gifted, and like Brophy the bulk of her examples are taken from elementary and middle school environments. Similar to Brophy's learning community requirement that goals be selected, Harris suggests that "a teacher's job is to unite students by giving them a common goal" (2009, p. 247). So a learning community is one that shares a common goal, or perhaps a common set of curriculum goals. This idea of setting goals will be further explored in the next chapter as it is a critical link between Brophy's learning community and his *motivation to learn* theory. It appears that a truly gifted teacher is a leader who can accomplish the three criteria above, and for those teachers uniting students with a common goal seems to be a self evident corollary. Perhaps elementary and middle school teachers, are simply in a better position to influence their students: by dint of effort and sufficient time and exposure to students (all day long), not to mention the young and more impressionable age of students' minds at these grade levels.

In contrast, high school teachers, by Harris' own admission have a more difficult time. Intervention by school or by teacher within a student's home will improve home life, but this does not translate to their school environment (2009, p. 237-238). Good and Brophy admit that teachers who wish to socialize students must be prepared to go above and beyond the call of duty. These teachers are in a special position to help students, but frustrations can occur, "some students do not respond despite continued attempts to reach them" (2000, p. 186). The larger the class the more likely it is to form sub-groups (Harris, 2009, p. 243). "The teacher's job is most difficult, I think, when her students come from widely different socioeconomic classes," (Harris, 2009, p. 243).

Magnet schools, and other distinguished private schools are more homogeneous (Harris, 2009, p. 244). At these types of schools, students are all selected based on particular criteria and parents all believe in the education system (in private schools parents typically pay for the privilege of enrolling their children). Harris's theory of group socialization includes the idea that a parent / adult homogeneous peer group does have some power to influence its own child peer group. Since the parent group is united in these cases, the children all draw their values and cultures from the adult group. They do not draw from individual parents but draw from what is agreed upon. "Anything children have in common, shared and approved by most of the children in the group can be a part of their culture" (Harris, 2009, p. 197) and since children in this group model behavior and values from parents who all share similar educational aspirations for their children, children value their own education. This is a group to group socialization phenomenon, very different from the traditional nurture assumption subscribed to by Brophy. In short, students in magnet programs or private or independent schools are more likely to share common goals, values and dispositions towards learning than their public school counterparts.

Harris notes that "teenagers sort themselves out into peer groups that vary in their attitudes towards intellectual achievement" (2009, p. 245). The interesting thing about high school is that, "even if the population is homogeneous, the larger enrollment in a high school permits the students to form more social categories and to divide up in more ways", and "once these groups form, whatever characteristics they started out with are exaggerated by group contrast effects" (2009, p. 246). Worse, "once kids have split up into groups it is extremely difficult to put them back together again" (2009, p.246). Translation – school teachers are in trouble if society at large abandons its duty to socialize its youth expecting that schools are the place where character, values, and ethics are to be taught to a disparate group of students who are all supposed to somehow by default be able to relate to one another. Harris admits that "trouble is far more likely to occur when teenagers become members of the groups with goals and values very different from those of their parents" (2009, p. 262). Where do teenagers meet these groups with values different from their parents – why at school! With the

explosion of online communities like "Facebook", it is plausible that some students may find themselves alone at high school, more comfortable identifying with some online group rather than a salient group in their own school.

A high school teacher may follow Brophy's advice attempting to create a learning community but there are two important issues a teacher must keep in mind. Most of Brophy's pedagogical advice can be linked to Dewey's theory of liberal classroom management techniques and teaching strategies which have been subsumed in differential instruction and constructivist pedagogy. Regrettably, this focus appears to be a shadow of Dewey's theory of education, lacking his focus on freedom. These kinds of pedagogy are linked to Brophy's *motivation to learn* theory, but by no means require a learning community as defined by Brophy to exist. This link between Dewey and Brophy will be explored further in the next chapter since Dewey contributes more meaningfully to Brophy's motivation to learn theory than to his learning community. It will be argued that a good high school Dewey-like teacher may motivate students to learn without Brophy's learning community. Good and Brophy (2000) seem to suggest themselves that *motivation to learn* may be an individual teacher to student process that is merely enhanced by a learning community but not impossible without one. The greatest difficulty facing high school teachers is that high schools provide opportunities for students to form many sub-cultures and few (if any) of these are directly influenced by individual teachers within their classrooms. There are exceptional examples given in movies and media of high school teachers making a difference (positively motivating students to learn), but these are exceptions and are not useful as general models for teachers to follow. Good and Brophy in *Looking In Classrooms* admit that teachers who wish to socialize students must be prepared to go above and beyond the call of duty. These teachers are in a special position to help students, but frustrations can occur, "some students do not respond despite continued attempts to reach them" (2000, p. 186). In the movies, these teachers visit students at home in dangerous neighbourhoods, and risk being fired by breaking school rules in an effort to 'save' students. The sacrifice these teachers may make is potentially beyond the call of duty and even if held up as models other teachers are not likely to follow their examples, and

even if they do, their success does not imply that a learning community, in the sense that Brophy envisions will be created as a result of their efforts.

SUMMARY

Brophy in his text *Motivating Students to Learn* argues that his ideal learning community (as discussed in his second chapter) coupled with his motivation to learn theory, (presented primarily in his ninth chapter) are likely to be more successful together in motivating students to learn within the scope of a typical public school classroom. His theory is also applicable to many private schools which operate within similar guidelines as their public school counterparts. This claim is most plausible within the context of elementary and middle school classrooms, where Brophy did the bulk of his research. There are three necessary conditions to be met if teachers are to create Brophy style learning communities: attractive room and teacher; learning goals set by teacher and achieved by students; teacher selects and presents worthwhile content, helping students to appreciate the value of the selected content. Regardless of whether or not these conditions are met, it is important that teachers create safe and respectful classroom environments. Within a safe environment, students are more likely to learn and take risks. This kind of advice follows closely Maslow's hierarchical structure of motivational of needs, which has been well received within the psychological mainstream (Maslow, 1999, p. xxviii). It therefore seems plausible that the more a class environment meets Brophy's necessary conditions the more likely other complementary motivational strategies are to be successful in supporting student learning. However, it is also possible that Brophy's learning communities are a product of motivation to learn and not the precursor he presumes. This interpretation is in part supported by Brophy's own tangled presentation of learning communities and the blurring of the process vs. product distinction as previously discussed. In any interpretation, there is an undeniable co-relational dependency between both theories.

Another complication unforeseen by Brophy is his reliance upon more traditional notions of socialization. According to Harris, socialization is primarily something students do

for themselves. They select peer groups and make judgments regarding their social status and subscribe to and accept their peer groups norms, values and behavioural expectations. Therefore the influence teachers have on shifting students' dispositions towards valuing learning tasks, assignments and lessons is more likely indirect, greatly diminishing the effectiveness of a teacher's efforts to *socialize* students' behavior. More importantly, the learning environment inevitably contains various student peer groups. Simply because the teacher is the authority figure in the classroom does not imply that the teacher is perceived as a leader of the cliques of students within the classroom. This complication is overcome in part perhaps by a teachers' potential ability to be seen as a student-group leader within the classroom. Oddly, Brophy claims that teachers using Baumrind's "authoritative" model will be more successful classroom managers. This claim overlooks the multi-cultural students and their values found in Ontario classrooms. As Harris points out, this strategy primarily works best for white children. Arguably, while Brophy's strategy may work well at the kindergarten to grade 8 levels, it is arguably less likely to be the reality between grades 9 to 12. At the higher grade levels it is more plausible that teachers will be able to influence some students based on individual teacher-student relationships and not necessarily based on their social status in the classroom.

While we can use Harris' notion of leadership in the classroom to support Brophy's conception of learning communities, it is unclear how this leadership role is formed and how much influence a teacher can exert on a group of students at different ages without this designation. The notion that teachers are leaders in the classroom may be inferred by Brophy's arguments surrounding classroom management, particularly in his previous work *Looking In Classrooms* which details explicit advice to teachers on the day to day management of teaching and learning. In *Motivating Students to Learn*, Brophy does not explicitly define the leadership role teachers are to strive toward creating and maintaining. Instead he places his attention on defining learning communities as places where students come to learn in a safe environment and where teachers present worthwhile content and persuade students of the contents value. It seems plausible that the young minds of students in grades kindergarten to grade six are more

impressionable than older students. It appears likely that while students form groups early on, they still accept adult supervision and authority as a matter of course. Adults are arguably bigger, stronger and more capable physically and mentally than adolescent children. This alone, along with the uncontested cultural norm of adult authority (in all present modern day cultures) translates to young students (and groups of these students) accepting adult authority. This idea is supported by Harris' theory of adult group to child group influence. This right of authority may not be agreeable to all adolescent students at all times, but it does exist nonetheless. Therefore elementary and middle school students allow themselves to be influenced by adults through a complex set of biological and cultural reasons. As students grow older they become physically bigger, stronger and more capable both physically and mentally. Arguably teenagers are often as physically capable as the adults who teach them and the physical-capability gap between teenagers and adults narrows considerably by grade 12. If physical prowess had anything to do with teachers' leadership potential within K-6 classrooms, it is likely greatly diminished by grade 12. Arguably this is also true concerning students' mental ability. As students approach grade 12, it is possible that they know more, and may even consider themselves smarter than some adults who teach them. Whatever the reasons, teenage students are typically less likely to be influenced by teachers and more likely to be influenced by their peers.

Brophy's strongest argument for why his conception of classroom learning communities work rests on Maslow-like assumptions regarding the physical and psychological needs of students. Chaotic environments, noise, distraction, fear of failure all undermine the focus required by students striving to learn anything. Brophy's conception of a learning community rests on this point under his requirement that classroom and teacher should be attractive to students. To the extent that a teacher achieves this goal, they also simultaneously create a safe (and potentially positive) learning environment. The second requirement can simply be decoded as good pedagogy. Focusing student attention on collaborative and individual learning goals can be seen in differentiated and constructivist pedagogy and is likely to be a goal of most teachers following modern North American pedagogical theory. The only thing that truly sets Brophy's learning

community apart from a typical classroom is his third requirement – that teachers persuade ('help') students to see that the lessons and worthwhile content selected are of value. This 'help' is likely accomplished through pedagogy or direct dialog with students and is the focus of Brophy's theory *motivation to learn* and the focus of this thesis. Teachers are certainly more likely to motivate (reach) students when they try to reach them, than when they do not. It is not clear, however that more than individual student-teacher relationships are necessary components. If a learning community as conceived by Brophy was in place, it is also not clear – given our new understanding of how socialization really works – how much more likely it would be for a teacher to reach alienated or disinterested students because of the learning community.

CHAPTER 3

MOTIVATION TO LEARN AN INTRODUCTION

Brophy borrows heavily from other motivational research while informing and presenting his conception of motivation to learn theory which is restricted to motivating students found within the typical public school classroom. It is important to note that his theory has limited scope, focusing on student motivation within the typical classroom, where he studied mainly K-8 students. He constructs his theory and builds upon it throughout his text *Motivating Students to Learn*. He introduces his motivation to learn in Chapter 1 and discusses pieces of it along the way, unfortunately requiring the reader to piece together his argumentation over many chapters, (in particular chapters: one, two, six, nine and ten are most relevant). Chapter 9 (pages 249 to 306) however is, thankfully, dedicated to setting out (constructing and defending) his conception of motivation to learn theory.

> By motivation to learn, I mean a student's tendency to find academic activities meaningful and worthwhile and to try to get the intended learning benefits from them. In contrast to intrinsic motivation, which is primarily an affective response to an activity, motivation to learn is primarily a cognitive response involving attempts to make sense of the activity, understand the knowledge it develops, and master the skills that it promotes ... Students may be motivated to learn from an activity whether or not they find its content interesting or its processes enjoyable ... In essence, motivation to learn is [an] adoption of learning goals and related strategies; it is not linked directly to either extrinsic motivation or intrinsic motivation. (Brophy, 2004, p. 249-250)

In my judgment, Brophy carefully lays out what his conception includes and what it does not include. Students are to find (come to see) lessons and school work as meaningful (intelligible) and worthwhile (of value to the student). For example students will understand what the teacher means when she says "literacy is an important life skill", and these students should come to believe it. Yet even if the students believe there are complex motivational problems to untangle. Brophy is careful to point out that such suitably motivated students will be strongly disposed to attempt to make sense of activities, understand knowledge and master skills. He asserts that this motivational

process is primarily a cognitive rather than affective response. Perhaps this is because, according to Ellett and Ericson, intrinsic motivational theorists for almost three decades influenced many of the learning strategies to be hedonistically fun and enjoyable (2009, p. 348), Brophy says much the same thing and likely wishes to ensure teachers appreciate the distinction. In a vignette regarding previous research Brophy implies that intrinsically motivated students are erratic in their learning, while students suitably motivated to learn "seemed to be motivated by a duty-bound sense of obligation" (2004, p.251) and were therefore – by conception – more likely to be consistent in their learning. The vignette clarifies why suitably motivated students do not need to find the learning process interesting or enjoyable just meaningful and worthwhile.

> A goal-oriented curriculum is crucial because unless there are good reasons for learning something and authentic activities to use as vehicles for developing this learning, there is no basis for appreciating the learning. Instruction is crucial as well, however, because optimally mediated learning experiences raises students' consciousness of the purposes and goals of each activity and help them to build schemas that will enable them to learn with understanding, appreciation, and life applications. (Brophy, 2004, p. 262)

In order to foster *motivation to learn*, then there must be "good reasons" (from both the student's and the teacher's perspective) for learning the material. A little later in this chapter, an exploration of John Dewey's conception of growth and freedom will aid in explaining why choosing good reasons for learning is important. So while motivation to learn is a "cognitive approach" it is necessarily supported by good pedagogy: lessons and activities selected and presented (taught) based on some sense of worth, in an intelligible manner that makes use of the best teaching practices available. The implications are clear, should teachers teach poorly, select meaningless or pointless goals, students may not tend toward being motivation to learn the subject matter (lessons and activities). However, *motivation to learn* appears to have a greater scope than simply prodding students to engage in learning, it is a "schema".

> The notion of learning with understanding, appreciation, and attention to life applications implies much more than mere interest in a topic, and it includes cognitive strategies and meta-cognitive control components along

> with affective components. I find it helpful to view this kind of motivated learning as a schema ... a network of connected insights, skills, values and dispositions that enable students to understand what it means to engage in academic activities with the intention of accomplishing their learning goals and with awareness of the strategies they use in attempting to do so. The total scheme cannot be taught directly, although some of its cognitive and skill components can. In addition, its value and dispositional components can be stimulated and supported through modeling and communication of attitudes, beliefs, values, expectations and related dispositions to action. (Brophy, 2004, p. 263)

This notion of a schema (a complex mental state) complicates matters considerably. Some borrowing of Dewey's conception of freedom may help extend and explain how Brophy's own conception might manage all of this. Curiously, motivation to learn is "primarily a cognitive approach", but as a schema it contains affective components? Brophy never makes clear his reason for including both cognitive and affective components. Cognitive strategies imply 'making sense' of the material, understanding what is being asked of you as a student, and understanding (at some level) the material presented. Meta-cognitive components include recognizing how you best learn, and how to best approach solving a particular problem within a particular problem domain. One plausible explanation of why Brophy includes affective components within motivation to learn theory is to firmly tie it to traditional notions of *expectancy x value theory*. As will be discussed momentarily, *expectancy x value theory* may be considered, for all practical purposes, identical to *want-belief motivational theory*. As Ellett and Ericson point out in their paper *Motivation and Learning*, "most educators place feelings, emotions, and attitudes into the affective domain" (2010, p. 342).

A small detour is required here to understand how *expectancy x value theory* is pragmatically identical to *want-belief theory* and why this distinction is relevant. The 'Folk Psychology' explanation of student motivation which fits a want – belief model is useful since many classroom teachers are only superficially aware of motivational theory, philosophy and its application in the analysis of student learning. This model is one that "every day persons implicitly use and various kinds of social scientists find central in explaining why a person did action A" (Ellett & Ericson, 2008, p. 10). Ellett and Ericson warn us that the want – belief template is of rather limited value as a

predictive tool (2010, p. 342). However, it has merit as an analytical tool for teachers who often use formative assessment as a predictor of student future success and as a measure of the present level of student competency within a given domain. As Ellett and Ericson suggest strongly, the *want-belief theory* successfully gives singular causal explanations, avoids universal laws, and provides adequate reasons for motives (2010, p. 341). Formative assessment could include motive questions and analysis to ensure that learning is occurring and gauge the degree to which motivation to learn is adopted by students.

The primary difference between the *want-belief* model and Brophy's *expectancy x value* model is in regards to how wide an interpretation one places on the terms. "Most philosophers and psychologists have used the term belief, but those influenced by economists have used the term expectation" (Ellett & Ericson, 2008, p. 8). Ellett and Ericson reject placing belief in the emotional domain. "It has been understood that 'belief' is typically a factual (empirical) belief which need not and normally does not involve any feelings" (2008, p. 24). Hence the word expectancy can be replaced by the word belief. In fact, Ellett and Ericson make such a claim in the published version of *Motivation and Learning* (2010, p 344). With a little more work we can substitute the word value for want. Arguably Brophy's interpretation of the term *value* is in some ways narrow, "the word value, used here as a verb meaning to appreciate or see worth in, should not be confused with the noun values, meaning ethical principles or ideals" (Brophy, 2004, p. 18, original emphasis). Yet this leaves a near infinite set of non ethical values to consider. Brophy defines this as a model of reasoning within a social context. While Ellett and Ericson recommend using want in its radically wide (Kekes' like) sense, Brophy's sense of 'want' (value) is sufficiently wide for our purposes. We can define want as meaning the pursuit of a goal or object we see worth in (extrinsic value) or appreciate (intrinsic value). Brophy and Ellett and Ericson stipulate that an important feature of the 'want' concept is that it is a degree word, and so too is belief (Ellett & Ericson 2008, p. 22-24). Brophy claims this by stating "effort investment is viewed as the product for terms rather than the sum of expectancy and value factors because it is assumed that no effort at all will be invested in a task if one factor is

missing entirely" (Brophy, 2004, p. 18). While not strictly mathematical since a 'product' can only be defined between ratio terms, Brophy still conveys the sense that some kind of 'ranking' system is possible. Again Ellett and Ericson say something very similar here, "Folk psychology, however, need not make such strong quantitative assumptions; it can deal quite nicely with ordinal scales" (2010, p. 345). Since we can presume that there exists a given student S who will put in zero effort on an assignment which is either not valued or where expectation fails to exist it therefore implies that there also exists little practical difference between the two theories: expectancy x value, when compared pragmatically with the want – belief 'Folk Psychology' theory. Both theories work the same way containing degree words that can be measured "with ordinal scales" (Ellett & Ericson, 2008, p. 22) and can be used to explain student motivation. Ellett and Ericson also promote and support the idea that it is the total set of values that determines what a person does or does not do. While Brophy appears to partly ignore the complexity of motivational sets on student learning, he is aware of the complexity of motivation.

Brophy's conception of motivation to learn includes various elements of *want-belief theory* that support one another encouraging students to focus time and effort on *some* academic activities. Students come to (eventually) believe that they are capable of learning the material (expectancy) and come to (eventually) want to learn the material because there is sufficient value in doing so (perhaps a Dewey-like sense of freedom). "The fact is that much of our knowledge is acquired by accepting the beliefs of others … Additionally, much of our learning must also be accepted on trust based upon our social communication with others – often without being able to independently check out its validity (Henze, 2009, p.102). Ellett says much the same thing in his essay *Mindless Recall: Knowing and Knowing How*, calling it "knowing in the reliable-authority sense" (unpublished, p 5.). Catherine Elgin also supports this trust based way of knowing. "Much of what I purport to know I cannot personally justify … others I have gleaned from reliable sources" (1999, p.111). Brophy does not discuss the mechanism trust plays in communicating the network of insights, skills, values and dispositions from teacher to student. Plausibly, trust could and should be subsumed within Brophy's "attractive

room and teacher" learning-community requirement, although Brophy never says so explicitly.

In Chapter 6 Brophy outlines three types of value from Eccles and Wigfield's work: goal attainment value, intrinsic or interest value, and utility value. "I would expand it to place more emphasis on the cognitive aspects of student motivation to learn academic content" (2004, p. 151). Goal attainment value for Brophy would include experiencing the satisfaction of understanding or skill mastery. Intrinsic value would include aesthetic appreciation of the content or skill, and utility value would include an awareness of the role of learning in improving the quality of one's life or making one a better person (2004, p. 151). We will rely on Dewey to assist Brophy in fleshing out these ideas. As a side comment, it is curious that Brophy appears to focus on these 'cognitive aspects', when some of these values are placed in the affective domain by other writers. Wherever one places them, it is clear that this expanded list of values and dispositions is to be included within Brophy's conception of motivation to learn.

The *expectancy x value* motivational model is a powerful explicative tool. The *expectancy* portion can be linked to the insights and skills portion of the motivation to learn schema. When teachers support students' understanding lessons presented (offering insights) and support students' attempts to master the related skills (by modeling) the students' expectancy of success increases. Although the term 'expect' appears stretched thin as a word. For example, students faced with a difficult math problem may 'expect' only tentatively to be successful, and then only based on past performance. Unfamiliar problems within unfamiliar contexts may hold only the most tentative clues regarding potential outcomes. How do students expect to be successful then? Perhaps this is why motivation to learn focuses so much on notions of value. The *value* portion of motivation to learn is trivially linked to the value portion of Brophy's schema (2004, p.151). Yet remember, as Ellett and Ericson point out, the want-belief conceptual model of motivation has limited usefulness as a predictive tool. It is much better at singular causal explanations (2008, p.12 unpublished version). Therefore the adoption of the right kinds of dispositions is required for students to be motivated to

learn as a general tendency. These dispositions for Brophy are acquired by students through teachers modeling and socializing them.

MOTIVATION TO LEARN AS A DISPOSITION

> Motivation to learn can be viewed as either an enduring disposition ... or a situation-specific state ... This chapter suggests ways for you to socialize your students' motivation to learn as a general disposition and stimulate it in particular teaching situations by bringing it to the forefront relative to other motives that may be operating at the time [in order to displace those contrary motives]. (Brophy, 2004, p. 270)

The enduring character trait (disposition / habit) is the glue that holds the various aspects of *motivation to learn* together and is undoubtedly Brophy's Holy Grail. In this (second more powerfully) stated version of the theory, students exhibit some *motivation to learn* at all times because they have been convinced of the wisdom of learning with alacrity. Brophy claims students who are suitably motivated to learn will focus on learning the material presented out of a sense of duty or commitment (2004, p. 251) in such a way that students could potentially act from habit rather than intention. Perhaps this sense can best be described as an enduring disposition? While the terms are not synonyms strictly speaking, they are often describing similar observable behavior. If the disposition (motivation to learn) is weak relative to other motives, it may be ignored.

Plausibly Brophy's set of dispositions can influence future student motivation to learn, if they are powerful enough. He does not clearly distinguish between disposition (habit) and intentions. Yet students suitably influenced by *motivation to learn* dispositions are required "to understand what it means to engage in academic activities with the intention of accomplishing their learning goals" (Brophy, 2004, p. 263). In a 2008 paper titled *Habits vs. Intention in the prediction of future behavior*, Danner, et al., distinguish the different features of habit and intention. The distinction is important since "people are able to perform goal-directed behavior without forming an explicit intention because the behavior is directly mentally accessed in the context at hand as a result of frequently and consistently having performed that behavior in the past" (p. 245-246). In a sense some types of habits appear to interfere with intention. So students have both an

enduring tendency (habit) to learn and intent to learn (Dewey would call this intent an active-habit), but can these two features operate independently? "When the same behavior is more frequently executed in the past and increases in habit strength, it is less guided by intention to perform that behavior ... the stronger the habit the weaker the intention-behavior" (Danner, et al., 2008, p. 246). Under what conditions then are intentions stronger than habit? "People are more likely to rely on intentional processes when they rarely perform the same behavior in the same context or regularly perform the same behavior in different contexts, as the context is either less strongly or less uniquely linked to the behavior" (Danner, et al., 2008, p. 247-148). Perhaps this question need not be an either-or problem. "There is nothing in the inherent nature of habit that prevents intelligent method from becoming itself habitual" (Dewey, 1938, p. 81). In some cases Brophy style motivation to learn can be exhibited by habit. Students in the same class, with the same teacher, learning a math lesson find the context stable and thus learn out of a sense of habit. In this case, perhaps students do not judge the lesson meaningful (intelligible) and worthwhile (of value) in the moment but by reflex? In other cases Brophy style motivation to learn dispositions can be exhibited by intention. These students exhibit intention instead of habit during a new unit presented in a new way (through a new activity). These students presumably are convinced anew by the teacher that the lesson is meaningful and worthwhile and therefore exhibit intentional learning.

For the purpose of exploration, assume that given a master teacher (an experienced and skilled teacher), assume a learning community of students, and further assume that modeling and socialization works in the sense that all students come to accept the motivation to learn disposition as their own. Assume also students experience meaningful (intelligible) instruction of worthwhile (valuable) content, and further assume that students have the cognitive strategies in place to be successful should they apply a reasonable amount of effort. Taken this string of assumptions, does Brophy also assume that all such students will actually learn the material? No. Brophy is careful to state only that motivated to learn students are "to try to get the intended learning benefits" (2004, p. 249); he does not say all students will successfully learn the material.

He does however seem to imply that all students who hold the disposition to be motivated to learn will reasonably try (to some degree) to learn. This implication of action based on a schema of supportive insights, skills, values and dispositions appears very Socratic in nature. Maslow is one who shares this Socratic view.

> Knowledge and action are very closely bound together, all agree. I go much further, and am convinced that knowledge and action are frequently synonymous, even identical in the Socratic fashion. Where we know fully and completely, suitable action follows automatically and reflexly [sic]. Choices are then made without conflict and with full spontaneity. (Maslow, 1999, p. 77)

It is possible to interpret Brophy as holding this belief that all students who hold the disposition, find it intelligible, trust the teacher, and really value it, will attempt to learn academic material. However by instructing teachers to stimulate this disposition to learn relative to other motives acting at the same time (Brophy, 2004, p. 270) implies his awareness of the possibility of other motivational factors that may also influence students' behavior. Examining the value aspect of the *expectancy x value* motivational model, Brophy comments, "to be motivated to do something, we need good reasons for doing it, not just confidence that we can do it if we try" (Brophy, 2004, p. 151). Yet given the total set of motives students may consider it unreasonable to try. Said another way, It is conceivable that even students who hold the motivation to learn disposition may choose not to learn specific lessons or accomplish particular learning goals. Perhaps the reasons presented to the student are not good enough? It implies that the disposition may be found in degrees based on a student's system of values and social context. Perhaps students can have a weak disposition, or a strong disposition towards learning? Perhaps some students merely see little initial value, or do not initially expect (believe) themselves capable? "The action a person performs depends on the total set of desires, and on how each desire is related to the others. An adequate dispositional analysis will thus be very complicated, and perhaps unmanageably so" (Ellett & Ericson, 2010, p. 340). This interpretation strongly supports Brophy's statement regarding a teacher's need to 'stimulate' the disposition (to make it strong enough to move students to act upon it) through modeling and socialization (newly interpreted as a kind of

persuasive communication) and is presumably why Brophy offers additional chapters that deal with unmotivated to learn students.

MOTIVATION TO LEARN AND JOHN DEWEY

> If we are willing to conceive education as the process of forming fundamental dispositions, intellectual and emotional, toward nature and fellow men, philosophy may even be defined as the general theory of education. (Dewey, 1944, p. 328)

The primary goal for Brophy in writing *Motivating Students to Learn* is to convince classroom teachers to foster motivation to learn as a set of dispositions enabling students to try and get the intended benefits (the valued learning goals) from most academic activities. John Dewey's writing supports this position and in many ways clarifies and expands on the conceptual features that Brophy touches upon. In particular Brophy fails to draw out in his Chapter 9 the importance of students making intelligent choices. Fortunately in Chapter 10 of *Motivating Students to Learn*, he does mention that teachers are interested in supporting students' present and future best interests (2004, p.311) and this concern implies that *motivation to learn theory* may be articulated and expanded by Dewey's desirability of students' growth and freedom.

In many ways Brophy ascribes to Dewey's educational ideas and ideals. He is ultimately concerned with how students experience learning and improve their own thinking.

> Good cognitive modeling [by the teacher] should convey [to students] the aesthetic experiences, personal satisfactions, celebrations of new insights, pleasures taken in familiar recognitions, and other manifestations of what it looks and feels like to engage in the activity with appreciation and motivation to learn." (Brophy, 2004, p. 266)

Brophy recognizes that without "good reasons" students will not value or engage in learning. "To explain the mediated acquisition of new values or interests in domain-specific activities we need a concept of scaffolded appreciation," (Brophy, 2004, p. 264). Brophy attempts to explain how teachers might foster motivation to learn as a state, and

regrettably he says very little about how to foster it as a disposition. Since he subscribes to Dewey's educational ideas, it is odd that he does not make use of Dewey's ideas around growth and freedom since they would likely support and foster motivation to learn as a disposition.

For Dewey, "everything depends upon the quality of the experience which is had" (1938, p. 27). Furthermore, "The central problem of an education based upon experience is to select the kind of present experiences that live fruitfully and creatively in subsequent experiences" (Dewey, 1938, p. 27). Dewey supports Brophy's position. It is the teacher's responsibility to engage students in activities which promote future experiences (learning) which are desirable (meaningful and worthwhile). Yet unlike Brophy, Dewey gives us some notion of how these experiences may be properly selected through the conception of growth. Since every experience influences future experiences, presently constructed experiences can be judged and approved of by the kinds of experiences the present one moves towards. It is therefore a teacher's business to know what direction an experience is heading toward (Dewey, 1938, p. 37-38). So not only must teachers select lessons that are meaningful (intelligible) and worthwhile (of value to the student) but they must also select lessons with future student growth in mind. The danger is clear, if a student has a poor educative experience (say in math), he or she may not continue to seek out mathematical experiences. To be clear, the student may find math somewhat enjoyable, even somewhat valuable, but come to expect failure, or lack of support, or even conclude that future goals should be selected to avoid the subject when possible. Therefore, objective conditions within the power of the educator place upon him or her, the duty of so constructing the environment of the students to create a worthwhile experience (Dewey, 1938, p. 45).

A second Dewey principle also clarifies *motivation to learn theory* – the principle of interaction. It assigns equal rights to both factors in experience objective (external) and internal conditions (1938, p. 42). That is to say students interact with their environment. The environment is whatever conditions interact with personal needs, desires, purposes, and capacities to create the experience which is had. The concept of

continuity (student growth) and interaction work together, to provide the value to be found within a particular academic activity (Dewey, 1938, p. 45). It may be argued that the teacher's responsibility is to manage the total student experience. This conception lends weight to Brophy's insistence upon the development of some kind of a learning community, which may or may not contain all the features Brophy requires. Arguably, any viable learning community can support motivation to learn as it is presumably a teacher controlled environment. That is to say it potentially manages the interactions students have between one another and the inanimate objects within the classroom in such a way as to support students' growth.

Brophy's motivation to learn should be fostered as a disposition. The formation of enduring attitudes, likes and dislikes are more important than the lessons in spelling. "The most important attitude that can be formed is that of desire to go on learning" (Dewey, 1938, p. 48), so teaching content that supports students gaining insights, skills, values and dispositions that foster in them an enduring disposition to learn is the end goal of education for both Brophy and Dewey. Yet Dewey is more articulate as to the desired end result – freedom. Most important for Dewey is the "freedom of judgment and power to carry deliberately chosen ends into execution ... power to frame purposes, to judge wisely, to evaluate desires by the consequences, which will result from acting upon them; power to select and order means to carry chosen ends into operation" (Dewey, 1938, p. 63). Even more importantly for Brophy, "since freedom resides in the operations of intelligent observations and judgment by which a purpose is developed, guidance given by the teacher to the exercise of the pupil's intelligence is an aid to freedom" (Dewey, 1938, p. 71). Therefore, teachers may successfully engender student freedom through good cognitive modeling and socialization (communication) of insights, skills, values and dispositions that aid students in forming their own dispositions to learn. Dewey's conception helps expand and directly supports Brophy's conception of motivation to learn. Fostering the right kinds of dispositions is a very important educational goal, and arguably dispositions that help students learn and by learning grow and by growing become free is indeed a noble ideal.

My discussion of Dewey is not intended to be exhaustive, but instead intended to show that the sense Brophy conveys of "meaningful" and more importantly "worthwhile" is simply not sufficiently convincing to students or teachers without some conception of "a good life" or a method of reaching "a good life" through an idea similar to Dewey's idea of freedom. Learning is important, but without some sense that the learning will be valuable because it offers more choices (more freedom) in the near and distant future, students may exhibit motivation to learn within a classroom setting (as a state), but may not form dispositions that would make use of motivation to learn in other classroom settings (courses) within traditional public schools. While I do not draw out this argument at great length, I believe Dewey's notions of growth and freedom are worth further exploration in connection with Brophy's *motivation to learn theory* as a disposition.

UNINTERESTED OR ALIENATED STUDENTS

Students who exhibit learned helplessness, failure syndrome or related performance concerns require special motivational treatment, yet these students usually value learning within a classroom on some level. Instead, "Apathy, not discouragement, is the ultimate motivational problem facing teachers" (Brophy, 2004, p. 307). These students are not interested or are alienated within the school system. These students do not find such school (typical classroom based) learning suitably meaningful or worthwhile enough. They may even know that they are capable of learning the material (Brophy, 2004, p. 307). "You will need to make sustained efforts to re-socialize such students' attitudes and beliefs. More specifically, you will need to show them what it means to engage in academic activities with motivation to learn, nurture their desire to do so, and follow up with appropriate structures and scaffolding of their learning efforts" (Brophy, 2004, p. 309). Brophy acknowledges that not everyone in a learning community will easily adopt motivation to learn and mistakenly relies upon traditional notions socialization to get the job done.

Perhaps worst of all apathy can 'harden' into a well-articulated belief system (Brophy, 2004, p. 310). Why should these students take seriously a teacher's attempts to portray school learning as worthwhile if their own prior experiences, and perhaps the message they get from their peers tell them otherwise (Brophy, 2004, p. 311)? Here Brophy acknowledges the Harris world of peer socialization! Brophy advises teachers that their best outcome with these students is to get them to see that "the basic reason for engaging in learning activities is to acquire the empowerment and self-actualization potential that these activities are designed to develop" (Brophy, 2004, p. 311). Since Brophy has not dealt with the socialization issues Harris raised, Brophy and his readers take the path of self-actualization in a search for answers. It is at this point that the teacher-students (pre-service teachers in American texts) reading Brophy's motivation to learn theory stop reading and scratch their collective heads. A student may find a teacher's reasons for the lesson being meaningful and worthwhile only minimally persuasive, rather than overwhelmingly persuasive. A quick check of the subject index reveals a few clues: self-determination, self-efficacy, self-handicapping, self-regulated learning, self-worth are all there in the index. There are four hundred and eighteen pages not counting the Roman numeral pages at the front. Nothing seems to foreshadow self-actualization without understanding Dewey's sense of student growth and potential freedom. Brophy goes on to list nine categories and then states "you can cultivate their development by making frequent reference to them and asking questions that lead students to discover them" (Brophy, 2004, p. 311). Indeed some unresponsive students might take notice of this new idea – however it is unlikely.

Acquiring freedom, as the power to make wise choices and select means to affect ends accomplishing personal goals is a powerful argument to adopt motivation to learn. All people want to find (create) good lives for themselves. "Living a good life is the most important of all human activities because the importance of everything else derives from it" (Kekes, 2002, p.3). Even most teenagers can appreciate on some level that what they do now is preparatory for a better potential future. This appears closely related to conceptions of self-actualization. It is likely arguable just how much growth is required before students reach any sense of true Dewey-like freedom.

> Natural impulses and desires constitute in any case the starting point. But there is no intellectual growth without some reconstruction, some remaking, of impulses and desires in the form in which they first show themselves. ... Thinking is thus a postponement of immediate action, while it effects internal control of impulse through a union of observation and memory, this union being the heart of reflection ... The ideal aim of education is creation of power of self-control". (Dewey, 1938, p. 64)

Likely very young students (attending grades K-4) have almost no idea what Dewey-like freedom is or how to choose wisely. They have little experience, and therefore little power of reflection. It is difficult to imagine that arguments of self-actualization would have much meaning at this grade level. Older students (attending grades 9-12) might be better at understanding the significance of gaining the wisdom to choose wisely and gaining skills and abilities to reach their long term goals. It is plausible that their greater life experience begins to manifest itself through clear reflective thought. These young people, as they grow, gain more "self-control". It is therefore more plausible that these teens (young adults) have the maturity to appreciate conceptions of self-actualization. However it is just as conceivable that some young people in grades 9 through 12 will have little idea or appreciation of Dewey freedom either because they lack the right kinds of experiences or are unable to subdue their native impulses, or escape from a chosen peer groups anti-educational set of values.

Just to be clear, none of the types of students mentioned in this section responds to the ideal learning community found within typical public school (or many private school) classrooms (at least not as Brophy imagines), or the attempts to model and socialize (persuade) their motivation to learn. Brophy assumes "students who are not motivated to learn are [of course] pursuing other goal-oriented agendas" (2004, p. 311) and advises teachers that "such students might learn little or nothing if left to work individually but accomplish some important learning goals if paired with classmates who are more oriented toward learning" (2004, p. 313) stumbling upon a phenomenon that Judith Harris would have no trouble explaining in detail. In any event, Brophy advises teachers to go beyond inducing curiosity to "help these students to see that it is in their own best interests to learn what you are trying to teach them" (2004, p. 314). This sense of 'best interest' is supported by Dewey's notions of growth and freedom. Brophy

suggests strongly that "at some level, most if not all students understand that it is in their own best interests not only to attend school but to strive to accomplish learning goals. Apathetic students have suppressed this realization, so you will have to help them rediscover it and confront its implications" (2004, p.314). While this passage again is supported by Dewey's sense of 'remaking of impulses', here I believe Brophy is a little too optimistic in his assumption that the 'realization' is 'suppressed'. In some students this may be true, but in other students, it may be that they are unresponsive to motivational efforts for other reasons.

UNCONSIDERED POSSIBILITIES

Brophy simply overlooks social reference groups and appears not to have grasped anything like Harris' theory of socialization. Unresponsive students may exist in the classroom for two major reasons. One, they belong to a sub-group within the class that does not accept the teacher as a Harris style leader, and holds to values and norms that are not in line with learning the course content. Harris discusses the effects of neighbourhoods and culture on adopted values. Move a family into a neighbourhood where the parents don't fit in, and the child's behaviour will change (2009, p.199). A similar thing can happen in school. Harris would say this is because of group contrast effects. "If a child moves into a clique of academic achievers, her attitude toward schoolwork is likely to improve; if she moves out of it, her attitudes gets worse" (2009, p. 170). However this phenomenon is not exclusive to 'resistor' groups. Imagine for a moment a group of high school Arts students taking the prerequisite Math course required for university. Presume these Art students are university bound. First, most will never need it in their lives; for some, it may be useful to finding (or making) a good life. These students may appreciate the value mathematics holds only as a short term means to an end. As a group they 'hate' math and suffer through it. These students, likely will do only the bare minimum to get by and 'survive'. No amount of the math teacher's Brophy style re-socialization will sway these students' beliefs or goals. Likely the alternative strategies (not motivation to learn strategies) Brophy mentions may have some short term effect. Two, the students in question may carry some genetically

explained antisocial behavior that makes them difficult to deal with in a social setting. "Behavioral genetic studies have proved beyond a shadow of a doubt that heredity is responsible for a sizable portion of the variations in people's personalities," (Harris, 2009, p. 276). Harris lists genetically influenced behaviors that are difficult to socialize as: a tendency to be active, impulsive, aggressive, quick to anger, bored with routine, seeks excitement, unafraid of getting hurt, and insensitivity to others emotions or feelings... (2009, p. 278). If a student has one of these genetically influenced character traits, it will make the teacher's job much more difficult to 'socialize' this student's motivation to learn. Arguably the tendency of a student to be overly impulsive is a potential impediment to their experiencing Dewey like freedom.

In the vignette above the Arts students are not negatively influenced by genetic impediments to social group membership. These students hang together with their own code of behaviour and potentially in the area of the Arts; will find their own Dewey-like sense of freedom; eventually able to make wise choices and seek to improve their own lives by taking responsibility for learning. These high school students may in fact rehearse and practice with alacrity. As mentioned in Chapter 2 regarding learning communities, high schools are more likely to contain various sub-groups of students making Brophy style learning communities in every class a nearly practical impossibility. It therefore stands to reason that persuasion regarding meaningful and worthwhile content and good pedagogy may be the only tools suited to the task at the high school level. A longitudinal study would need to be undertaken to assess the effectiveness of creating Brophy style learning communities at this level.

MOTIVATIONAL GOALS A QUESTION OF CHOICE

Students need to choose their education goals wisely as these goals greatly influence their motivation to learn. Brophy mentions the possibility of utility value including in its expanded definition an "awareness of the role of learning in improving the quality of one's life or making one a better person" (Brophy, 2004, p. 151). To value learning in

such a way one must imagine that students have the capacity to choose from the variety of reasons for doing (in our case the act of learning) the short and long term consequences of learning subject X. So here the goal of motivation to learn is to become a better person. This notion has two qualities: present and future considerations. Students elect to learn X because they see some value V in the near or distant future that X satisfies. For example, a music student (M) may practice rigorously for weeks because he or she sees that practice is necessary for their improvement in playing in the band. The band will perform a live concert in front of peers, and parents. Student (M) may see this performance as crucial to maintaining his social standing with his peers, and parents. The school community relies upon (M) to perform his best. This vignette illustrates what educators call an authentic audience and authentic activities. These kinds of stories may be touching, moving and inspiring, but life often presents choices that are far less clear.

In the day to day activities of typical school life, choices are not always so clear, goals and notions of what a good life might consist of, in the present, may interfere with securing goals of a good life that are farther off. "Students imagining themselves in a situation of motivational conflict (e.g., choice between meeting friends and learning for an exam) reported higher motivational interference, the more they valued the alternative activity," (Dietz & Fries, 2007, p. 96). Immediate goals, those realized (accomplished) in only a few hours, may interfere with the achievement of distant goals, those goals that may be reached in a few short months or years. Therefore, motivation to learn goals may be retarded by more immediate goals, or a set of conflicting and competing goals. Which goals become more salient, more important? "What we need is a tool that helps us explore the kaleidoscope of goals that become salient in diverse learning settings. Such a tool can provide insight into the culture-specific principles that govern choice, consistency, and continuity of goals," (Boekaerts et al., 2006, p. 35). Teachers need to help students choose wisely by presenting goals that are reachable and that are competitive when compared to other goals such that students are compelled to choose the teacher's goals. Brophy dedicates a whole chapter to the problem of selecting

goals. This is potentially why authentic activities that are meaningful and worthwhile are so important to Brophy and Dewey.

> The idea of using the present simply to get ready for the future contradicts itself. It omits, and even shuts out, the very conditions by which a person can be prepared for his future. We always live at the time we live and not at some other time, and only by extracting at each present time the full meaning of each present experience are we prepared for doing the same thing in the future. This is the only preparation which in the long run amounts to anything. All this means that attentive care must be devoted to the conditions which give each present experience a worth-while meaning. (Dewey, 1938, p. 49)

That is to say, students must come to see that their present choices not only affect their present experiences but also their future experiences. "There is widespread consensus that achievement values, as well as expectancy-related beliefs, predict the choices students make in the classroom and the way they profit from different learning opportunities," (Boekaerts et al., 2006, p. 39). Teachers must keep student 'growth' in mind when designing academic activities, and more importantly model and communicate both present value and future value to be gleaned from participating in such activities. Yet no amount of modeling may convince all students to choose wisely present ends. The lure of present goals (even conflicting goals) may be too great even though achieving these short term goals – like socializing with friends, may interfere with their ability to reach long term goals. The total motivational set, intrinsic, extrinsic, long and short term goals, Maslow-like needs, Dewey-like growth and motivation to learn all exist to greater or lesser degrees within the realm of possibility. A whole motivational set influences students and as they reach grade twelve they make more and more choices on their own without consulting (or even in spite of) adults.

The notion of Harris style socialization and in particular social group norms has already been discussed. Yet, the idea that teachers have the power to influence students, and by modeling and socializing their value systems, that they will somehow make wise choices as a result, seems problematic in Canadian classrooms at best. The idea that teachers can make choices for students is cultural. "Intrinsic motivation was enhanced

most for Caucasian Americans when they were making a personal choice. However, intrinsic motivation was enhanced most for Asian Americans when trusted authority figures or peers made choices for them," (Cooper, Patall & Robinson, 2008, p. 274). Asian cultures may benefit from this model as adults are more likely to choose wisely for the young and inexperienced students. North American (manly white) culture relies upon youths making their own choices. Our culture from early on tells students that their opinions matter and that they can choose for themselves – perhaps too early a burden to place on young shoulders.

SUMMARY

The sheer scope of insights, skills, values and dispositions that are required to drive forward the conception of motivation to learn (in its entirety) in students makes it a particularly complex set of potential tools for teachers to cut themselves upon. Yet, "in essence, motivation to learn is [an] adoption of learning goals and related strategies," (Brophy, 2004, p. 250). It must be said that not all students can learn all concepts or skills all the time. It must be acknowledged that subject mastery is relative to a particular line in the sand drawn by each subject and each grade level. It must be acknowledged that not all students will be motivated to learn all subject matter for a variety of complex internal, external, personal, impersonal and social reasons. Yet having stated these problems boldly, *motivation to learn* as a conception ties together the relative issues classroom teachers face when attempting to teach students to appreciate academic activities as both intelligible and worthwhile on some level great enough to tip the balance towards student learning. At its core is the goal of school (classroom) learning and providing students with the means to do so. Motivation to learn as a conception gives teachers some clear guidelines that might with perseverance, patience and grace positively shape students' basic impulses allowing for Dewey-like growth and eventual freedom to formulate their own plans with the tools required to carry them out and thereby create a better life for themselves than may have otherwise been possible.

Yet there is a lot of work to be done if classroom teachers are to influence students to learn academic material. In part this ambitious goal can be met by careful preparation of student experience. A learning environment which is safe, and provides opportunities for learning, and support for student growth goes a long way to paving the way for other motivational considerations. It does not appear necessary that a fully functional Brophy *learning community* be established first. It is plausible that young students in particular crave stable environments that are safe and that this alone may foster some forms of growth as the environment that is safe provides both safety in the present and expected safety on future occasions. Once this basic environment has been accomplished Dewey's conception of student *growth* may be attended to, or *motivation to learn* or any other of a number of strategies to further foster student learning. Brophy goes on at great length regarding the kind of environmental requirements beyond "attractive room and teacher" but they appear to either be a part of *motivation to learn*, or on the surface as irrelevant extras. Opportunities for learning are lessons carefully selected and presented to students which show the value of the lesson and presented intelligibly to the students. While saying the environment or learning community enhances this opportunity may be true, it is trivially true. Support for student *growth* may be considered a part of Brophy's four motivation to learn requirements: opportunities to learn; teachers press for thinking; teachers support attempts at understanding; teachers' evaluation emphasis is on understanding rather than work completion or right answers (Brophy, 2004, p. 254-255). These requirements support both the creation of learning goals and the achievement of these goals. The core of motivation to learn is satisfied. It must be acknowledged that much of Brophy's conception of motivation to learn ignores (and rightly so) the outliers – the problem students at the extremes of basic intellectual and social norms. Harris' notions of genetic factors influencing anti-social behavior (poor impulse control) that affects students' intellectual and social abilities are one such group – albeit a potentially large group. Students who poorly choose (with consistency) short term goals that interfere with greater future success qualify as another outlier group, not considered in Brophy's conception of motivation to learn. He deals with apathetic and unmotivated students in a separate chapter that clearly outlines potential alternative schemes for teachers to try motivating those types of

students to learn. While he discusses more succinctly in chapter ten these other strategies, it is most plausible that his discussion of Dewey and focus on utility value (learning for self improvement) should be included in his motivation to learn conception. This position is supported by Dewey, when he states: "I am not romantic enough about the young to suppose that every pupil will respond or that any child of normally strong impulses will respond on every occasion ... But it is certain that the general principle of social control cannot be predicated upon such cases," (1938, p. 56). One must draw the line in the sand some place and acknowledging that not everyone lead to the well will drink, is perhaps the wisest concession.

Yet the school (classroom) based *motivation to learn theory* is more than its 'core' pedagogical strengths, it is the fostering of a lifelong disposition (or set of dispositions) toward academic learning, setting it as a means to desirable future ends. One of those ends to be the possibility of living free with the power to choose wisely a course of action (goals) and the power of intelligence to set in motion proper means to achieve chosen ends. Yet even more important perhaps is the vision to see consequences clearly and choose actions that wisely acknowledge these consequences rather than choosing blindly. While meaningful and worthwhile experiences in the here and now are powerful in and of themselves, it is the careful growth towards wisdom and freedom for the student that makes student adoption of the motivation to learn disposition an overwhelmingly attractive choice. Intelligent choice of values and the support of these values in selecting the most worthwhile course of action cannot be over looked. Choices are perhaps wisest that seek to balance the needs of the present with the needs of the future. Since motivation to learn is not the only type of motivation that exists, it must compete and be chosen over and above competing goals, motives, and impulses.

CHAPTER 4

MOTIVATION TO LEARN APPLICABILITY ASSESSMENT

This chapter extends the critique of Brophy's text *Motivating Students to Learn* with a focus on examining *learning community theory* and *motivation to learn theory* in order to determine how they support one another. Remember, Brophy specifically developed this theory to be applicable in public school education classrooms. Motivation to learn will be explored as both a situational state (its core) and as a formation of a set of dispositions (as extended with an understanding of Dewey-like growth) by reflecting upon my own teaching practice as a high school computer science teacher (within a private independent school) and recent strides in teaching elementary and junior high school math in public schools. Since much of Brophy's research was carried out in elementary schools, the examination of high school computer science will provide a somewhat useful critique of Brophy's ideas. Exploring the junior undiscovered math prodigy (JUMP math) program will offer a counter argument to Brophy's learning-community and motivation to learn strategies for grades 3 to 8 in the area of teaching mathematics. Throughout this reflective process I will draw on recent research in teaching issues related to computer science, general assumptions of students' math ability and my own personal experience teaching high school computer courses while trying to see how far I can follow Brophy's advice.

It is perhaps worth noting before I continue that the particular computer courses I teach are atypical in the sense that they do not suffer from some of the problems found within the public school I attended as a student or the one I taught at during my first year as a teacher. The ICS3U grade 11 computer class I will discuss below has a guaranteed low teacher-student ratio (max 1:22). The class has enough computers for every student. The computers are maintained by a dedicated team of IT specialists – just down the hall from the classroom. If I lost a mouse or a computer stopped working, I would have a replacement within minutes not hours or days. Students typically are not socioeconomically disadvantaged; they come from families that can afford to send their

children to private school. In all other ways, my computer class is identical to those found in public schools in Ontario. In all Ontario public schools ICS3U is an elective course. Furthermore, my public school colleagues and I regularly share ideas through the ACSE and AP email list servers, and there are striking similarities in our discussions around student projects, teaching environments and pedagogical approaches.

This begs the question: can anyone be a (computer software) programmer? In many places it seems that Brophy would have us believe that the answer should be a tentative yes given the proper environment and appropriate motivation. The ability to predict who can learn to program and who cannot has been an attempt to explain the curious phenomenon described as a bimodal distribution of grades within a students' first serious "introductory" classes of computer science. This is also true for high school computer science courses. In many cases in high school this is by grade 11, but often introductory programming is a student's first year university computer science course. In any event, "in reviewing the literature relating to predicting success in learning a first programming language, no clear result emerges" (Robins, 2010, p.16) and the historic (computer science 'geek') perspective that there exists 10_2 (read as the binary number two) types of people in the world those who can program and those who cannot persist. While this distinction captures the bimodal distribution as a graph, it does not capture the why. Successes in other courses such as math (any math course) only correlated modestly to learning programming. There appears to be no 'magic factor' that distinguishes clearly those who can program and those who cannot program (Robins, 2010, p. 19). Frustratingly, it must be said that some students (for whatever reasons) never do learn to program well, even with a solid work ethic. It seems, then, that effort is not enough, "every year we see students who put in enormous amounts of work and are completely unsuccessful" (Robins, 2010, p. 13). It is interesting then that a deep motive coupled with deep strategy only had a modest correlation with a positive outcome in regards to learning Computer Science programming concepts (Robins, 2010, p. 13). This outcome suggests that ability does play a role in learning to program a computer.

Robins also claims that there are two closely related explanations for why this bimodal distribution occurs within the grades of first year computer science students. Firstly, the concepts in CS are tightly integrated. Each concept relies heavily on a few other key concepts which are coupled tightly together. Misunderstanding one of these concepts adversely affects a student's understanding of the others. Understanding one of these concepts fully makes it easier to understand others within the domain of knowledge. So, it appears that such courses are very difficult to master. Secondly, Robins claims that students learn at the edges of what they already know. Vygotsky's "zone of proximal development" (2010, p. 29), the pedagogical tool called "scaffolding", and "bootstrapping" (2010, p. 29) and various forms of pedagogical "constructivism" also make use of this basic assumption. In Dewey's view, the assumption involves one's familiar background "knowledge" and concepts. At any rate, Scaffolding provides support at the edge of a learner's competence (Robins, 2010, p. 30). Cognitive psychologists have shown that new information is stored and retrieved most effectively when it is integrated into existing knowledge (Robins, 2010, p.28). Therefore students who earn A's likely have a deep understanding of previous lessons. These students demonstrate a competent understanding of the material at particular points of evaluation with cumulating positive effects – each success building on the last. Furthermore, students who earn D's presumably paid little attention to detail, or have not grasped key concepts. These students demonstrate incomplete understanding of the material at particular points of evaluation with cumulating negative effects as the edges of what they know drift farther away from the next piece of the puzzle. It is still interestingly to note that Robins implicitly assumes that anyone can learn to be a programmer! Perhaps Brophy would be pleased. It is quite a hopeful assumption for Robins since he rejects the idea that there are two types of people those who can program and those who cannot. These two groups, whatever the explanation, are likely to continue to exist for a variety of reasons, but perhaps we teachers can close the gap through proper pedagogy.

COMPUTER SCIENCE LEARNING COMMUNITY

> To create conditions that favor your motivational efforts, you will need to establish and maintain your classroom as a learning community – a place where students [already] *come primarily to learn*, and [actually] succeed in doing so through collaboration with you and their classmates. You also will need to focus your curriculum on things that are worth learning and to develop this content in ways that help students to appreciate its significance and application potential. (Brophy, 2004, p.26 my emphasis, my inserts)

While Brophy's statement regarding the nature of learning communities being such that students 'come primarily to learn' seems ambitious, even over-reaching, it is perhaps best understood as explicitly stating the bond between the (ideal) learning community and the motivation to learn disposition fostered within the students that make up that community. Within mandatory courses, who can say for certain (with any probability) that students attend class primarily to learn the content of the course? In contrast, it seems plausible that (most) students who self-select computer science do come primarily to learn because they are *intrinsically* interested in exploring the academic material, or extrinsically motivated by future employment possibilities. During the late 1990's just before the 'dot com boom' went 'bust', there was a surge of enrolment in my classes. I've always attributed that surge to a fundamental extrinsic hope – financial security. There was a noticeable drop in enrolment after the 'bust', leading credence to that assumption, likely due to a huge decrease in perceived extrinsic rewards (lack of jobs). As a result, today students are much more likely to choose high school computer science courses for intrinsic rather than extrinsic reasons. Potentially these students have a high degree of likelihood of forming a cohesive and supportive Brophy style learning-community (environment). However, there are three issues that stand in the way of students in computer science becoming a learning community: experience, gender and stereotypes.

For many Ontario students the computer science grade 11 course (currently coded ICS3U) is their first serious programming language exposure. At the beginning of this course all students are likely to ascribe some intrinsic value (or potential utility value or

both) for their choosing computer science. Yet every year, a select group of grade 11 students come to the course with prior programming experience. Some programmed at summer camp, or were introduced to programming through robotics clubs or in junior high school. Therefore it may be presumed that expectancy x value motivation for students with relevant experience is high and for students with little or no experience expectancy (belief) in their own abilities may be low or at best their judgments about their own abilities are suspended. Regardless, there is already an experience gap between the two groups of students and if the gap is wide and apparent Harris style group dynamics may (very quickly) split the community into these two camps.

The second issue is that of gender. In mixed gender schools female enrolment in computer science is extremely low. This fact was recognized at least since the early 1980's with various groups, universities and individuals trying to 'do something' about it. This gap has not closed and does not look likely to close despite women recently gaining much greater representation in math and science. Stereotypes abound and any girl(s) who join(s) the grade 11 computer science ICS3U course must contend with not only a potential gap in experience, but with gender and social stereotypes as well. Some experts have gone as far as to suggest that the type of projects selected may discourage women from pursuing computer science.

Applying Harris' work on group theory to Brophy's ideal learning community, it seems likely that in order for a (ideal) learning-community to powerfully exist the class should be comprised of a rather homogeneous group of students who are all willing to learn computer science. Such a group does not exist initially within the grade 11 ICS3U course in computer science. The teacher must forge this group together out of existing subgroups. The gap in experience may be closed through careful and deliberate pedagogy, at least potentially, but the gender gap is always present and young women continue to avoid computer science for a variety of reasons. And a good teacher can try to reassure all students that any previous experiences will not disadvantage anyone. While there may be a few students who do not fit the 'geek' profile, (inexperienced boys, and perhaps girls regardless of previous experience) many of the experienced students

may label themselves as geeks (and they may be seen as 'geeks' by the others). These social categories may potentially result in the non-geeks thinking that they have less chance of being successful in the course through Harris style group contrast effects. In any event, 'geeks', 'girls' and 'others' are the minimum subgroups that make up the computer classroom right from the start. Remember from Harris, a self-selected peer group is a powerful socializing force. And as Harris has mentioned, once salient groups have been formed it is very difficult to get them apart.

Do student sub-groups in a first computer science course really matter? In particular, do these sub-groups break down (or hinder, impede) the ideal learning community Brophy intends teachers to develop? Perhaps not surprisingly, the answer likely depends on the skill and experience of the teacher. The students have, after all, self-selected to take computer science. They have at least some common values from which the teacher can draw the students into a closer knit community of computer science learners. The teacher may start by creating a safe community that is supportive of students' various learning needs. Focus the students on learning fundamental skills and allow them to support one another in pairs during lessons and activities. Learning the syntax and basic problem solving tools: sequence, selection and repetition may be easier in a peer supportive environment. The most difficult part of starting to program is finding logic and syntax errors. Students will appreciate knowing that 'failure' is natural and expected. Teachers should foster students' patience during this initial stage of learning a programming language. A skilled teacher should largely be successful at persuading non-geek students that they are as capable as their counterparts. The potential for students to accept their various strengths and bond together through this shared experience is very high if the teacher (actually) sets up the ideal learning environment following Brophy's advice. If the teacher continues to claim that the students are a whole class, and that a variety of skill sets and perspectives are required to solve interesting and large scale group projects, all sub-groups may come to feel that they are part of a whole learning community. So an experienced teacher following Jere Brophy's advice is better equipped to persuade all students that learning computer science (software programming) is possible to learn and of significant value.

Finally we come to the classroom management technique "authoritative" (Harris calls it the Just Right) method. I confess I bought into the "authoritative" methodology many years ago. I remember quite vividly a fellow faculty member (and dear friend) walk past my classroom (outside the back windows) and catch a number of my students playing video games on their laptops instead of taking notes as I was lecturing at the front. The look I saw on his face was priceless. I raised an eyebrow and gave him a node through the window. He stormed into my classroom and delivered an authoritarian (hot headed) style rebuke. The silence was deafening once my colleague left. I gave the authoritative (milk warm) translation, "He simply said that he cares about you. You were in danger of missing critical information that would have potentially made your life for several weeks in this class very difficult. There is no problem not paying attention, the trouble is that no one will tap you on the shoulder to point out to you the important bits you miss". To which one of the students (we'll call him John) responded "well, why didn't he just say that?" To which I asked "would you have listened?" I could see the students ponder that for a moment. Some looked abashed, others thoughtful. I could see the anger in their faces fade away. Later that day, I thanked my colleague for getting the students' attention. All of these students were WASPS as I recall, and this was a prestigious private school. Yet, at times, it was still appropriate to get the attention of a student or class using whatever methods necessary. The "authoritative" approach does not always reach every student either.

CORE MOTIVATION TO LEARN INSUFFICIENT FOR CS

In the first month of a yearlong computer course, students have yet to acquire the insights, skills, values or dispositions that motivation to learn has to offer. "In essence, motivation to learn is [a general] adoption of learning goals and related strategies," (Brophy, 2004, p. 249-250). In a first computer science course, the major goal is learning a programming language and various useful algorithms to develop problem solving (algorithmic thinking) skills. Students adopt learning goals that they perceive to be valuable: of aesthetic, intrinsic, or utility value. To stimulate and support students'

perception of value at the beginning of a course a discussion of present and future value of academic activities unfolds. Present or near present value may be stimulated by demonstrating and discussing large scale final projects from previous years. Future value may be stimulated by discussion and research into various careers and disciplines affected by current computer science research and development. Present and future value may also be stimulated by a careful examination of the role computers and computer science has played in its short history. Showing students that computer science is yet in its infancy and demonstrating its short and glorious past may encourage students to dream big.

Admittedly, some programming languages are more difficult to learn than others. In a typical modern 'industrial' computer programming language such as Java, a simple "hello world" program requires several lines of code. The College Board responsible for developing AP computer science and the International Baccalaureate program have both selected Java as the language of instruction. Initially little group work is possible, but the students can be paired side by side to assist each other while developing their coding habits. Yet, frustration and failure typically dog their every step. Some students who copy code from the board, or textbook misplace a bracket (or miss some other minor syntax rule) causing the compiler to output a cascade of cryptic error messages. Simple programs in Java may take (from the student's perspective) enormous amounts of time and energy to complete. Some students (about half the class in my experience) typically begin to exhibit poor work habits and lowered motivation. Robins reports that "students in our CS1 course frequently comment that the material quickly 'builds on itself' or 'snowballs', and that falling behind means disaster as it is difficult to catch up" (2010, p. 36). My own students have also experienced this phenomenon in grade 11. In this environment, how do teenage students manage failure? The foundation of Brophy's theory rests on a learning community where negative emotions are either minimal or nonexistent. Proximal goal setting, along with scaffolding and a solid teacher-student relationship is supposed to provide a support mechanism that glues all the students together and creates a learning environment where students are willing, if

not eager to learn. Eventually some students drop out of the course and some do not pursue computer science in grade 12.

Brophy's core conception of *motivation to learn* assumes reasonable students are willing to be 'socialized' (persuaded) by a teacher that a given lesson and course is both intelligible and valuable. How are students assumed to be reasonable? In a typical computer science classroom, teachers are forced by the system to assess students and report grades. Regrettably, the first assessment for students (either formative or summative) in a programming course already exhibits a bimodal distribution of grades. The largest correlative factors for success as reported by Robins is student effort and comfort level with respect to the material taught (2010, p. 14). Yet, the first formal assessment will differentiate the student body into two distinct groups with grades ranging between B's and A's for the first group, and with grades ranging between F's and D's for the second group. In a recent Wall Street Journal article, entitled *Why Chinese Mothers Are Superior* we learn that "What Chinese parents understand is that nothing is fun until you're good at it. To get good at anything you have to work, and children on their own never want to work, which is why it is crucial to override their preferences" (Chun, 2011, p.2). Do students attribute failure to a lack of hard work, or to a lack of ability? Gonzalez-Pienda et al. state clearly that their research supports the idea that parental support has a significant (if indirect) influence on how students attribute specific academic success and failure (2002, p. 276). Simplistically, the more parents expect their child to succeed, the more likely the child will attribute success to some inner ability (or trait), and the less likely the child will attribute failure to some lack of ability or trait (p. 277). Harris' group contrast effects will likely widen this gap should students identify with these two subgroups. Students are less likely to identify (create) these subgroups with initial formative assessments, than with end of unit summative assessments. Since students self-select the peer groups they identify with, what factors can the teacher hope to control and maintain class cohesion?

To review, Brophy claims that if teachers (in typical public and private school classrooms) select meaningful and worthwhile curriculum content and foster students'

motivation to learn by providing scaffolding and other support mechanisms within a Brophy style learning-community, then students will be more likely to adopt motivation to learn and be more successful in the future. I have found, however, that scaffolding and support mechanisms only go so far in a computer science course. Just copying correct code from the board is difficult for some students. In my courses, struggling students frequently comment that instructions are intelligible in class, but homework seems impossible to complete. Concepts are 'tightly coupled' and small failures of understanding have a big impact. In a classroom of twenty or more students, close individual teacher attention is impossible. Students must struggle for periods of time alone or with the aid of a peer while learning to code their first Java programs. If the peer only has a partial working knowledge of programming, or imperfect knowledge, they are sometimes little help. All the while, the computer, acting as a surrogate assessment tool, reports failure after failure. The expectancy side of the motivational puzzle becomes problematic as these students experience little success, and expect less and less that they can be successful, even with a great amount of effort. Even after I have warned the whole class of students that I too initially spent days debugging projects, these anecdotal stories are insufficient. For some of the students the environment is not 'safe' or 'attractive', just arduous and unrewarding. After the first major assessment, weaker students drop the course. This past year, I lost three students out of twelve. Two students left after the first assessment. The third left just before the final course drop deadline. All three students were weak math students, as it turns out. This drop-out pattern in grade 11 has been consistent over ten years of teaching computer science. Ironically, the result is that Brophy's learning community remains more tightly knit together after the purge. Arguably, it also indicates that either I, the teacher, failed the students, or the learning community failed those students, or Brophy's core conception of motivation to learn failed those students. In an elective course, teachers do not get a second chance to rehabilitate unmotivated students. Therefore, Brophy's advice regarding apathetic students is of relatively little long term value.

FOSTERING DISPOSITONS IN CS

As I have noted above, Robins believes the bimodal distribution of grades has been mistakenly labelled as those who can program and those who cannot. He does not believe that the two groups actually exist, but instead offers a different explanation called learning edge momentum. "In short, successfully acquiring one concept makes learning other closely linked concepts easier, while failing makes further learning harder," (Robins, 2010, p. 4). The idea is that concepts in computer science are tightly coupled. Imagine if you will a tall tree with all of its branches (concepts) near the top bunched together. Without the necessary scaffolding students on the ground may not reach any of the branches, or only able to touch the first branch with no idea how to grasp it. In an introductory computer science course, Brophy's motivation to learn conception as a set of insights, skills, values and dispositions is very useful.

The Java compiler (like most industrial programming languages) is ruthless in pointing out failure. Students perceive this level of failure, should it persist for very long, to be dehumanizing, or at least demoralizing. Arguably this is again from the student's limited and immature perspective. The following insights must be communicated before students write their first lines of code: failure is not (likely) personal; perseverance is (probably) required; seeking help is always encouraged. It is not personal in the sense that it does not mean that the student is not capable of learning how to program. Compilers are sticklers for syntax, and human beings need compilers to check their work. Students who write code successfully develop an eye for syntax and follow rules regarding indenting, commenting and other coding rules. Most importantly they learn to compile their code often. This technique is similar to 'step-wise-refinement', with the twist that parts of the program are coded stubs and filled in one piece at a time. Syntax errors are therefore kept to a minimum and are localized to the small block of code currently under construction. Anyone who is learning to program will make mistakes in syntax and it is (probably) natural to be frustrated during this process. Perseverance is (likely) necessary. Logic errors are very common, especially when students are tired. Students should get lots of rest. If the program compiles but does not work, and the

student has spent twenty minutes trying to solve the problem – they should take a break. When things still do not work students should seek help. A fresh set of eyes and discussing the problem with peers or the teacher is the next logical step. Students should try and figure out what they know and what they do not know. Insights are necessary at every new stage of skill development. It is possible to reduce the likely hood of students dropping the course after the first assessment, but this is due to pedagogy and learning experience (keeping an eye on Dewey-like growth) and little to do with the computer science learning community as a whole. The three students who dropped my course this year were treated to every persuasive argument I possessed and were given every opportunity to master assignments by resubmitting corrected work. In cases where students do not help one another, or the teacher forbids students to assist each other, then perhaps some fault of the learning community may contribute to the loss of students. It seems more plausible that the students who do not choose to stay in the course have not adopted the necessary dispositions for success in computer science.

Over the years, I have frequently asked students who drop my computer science courses to speak with me informally. I specifically ask if I could have been more help, and why they are choosing to leave. Answers vary: course is 'not for me', course work 'too difficult', course work 'too time consuming'. In almost every case it was 'the course' not the 'instructor'. Given that the exit interview was face to face with the instructor, perhaps students are too kind to be honest about the 'instructor' being the issue. Eventually I came to see pacing, material covered, and programming language to all be important factors. Changing to an easier programming language helped, but not always, and the skills learned in the 'easy' programming language, did not always transfer to 'harder' languages. The programming language appears to be a context, and the rules obviously do transfer but students do not immediately see that they do without some help. For example, sequence, selection and repetition taught in Alice 2.0 (a visual drag-n-drop coded language) is seen as quite different from those same concepts in Java. The code does look significantly different. More research is required to discover what teachers can do to help maintain class cohesion as a community of

learners and how to influence students' attribution of failure to lack of effort rather than lack of ability.

It is important to Brophy that student cognitive-engagement be high, and to support this level of engagement with appropriate lessons and activities. Four factors must be present: teachers provide opportunities to learn; teachers press for thinking; teachers support attempts at understanding; teachers' evaluation emphasis is on understanding rather than work completion or right answers: "all four of these factors need to be present and working together in order to develop motivation to learn that includes high levels of cognitive engagement in the content and learning activities" (Brophy, 2004, p. 254-255). In my own classes, these four factors do indeed support student learning, and those students who remain seem content. Curiously the support is a balance of managing student expectancy and value expectations. Computer programming offers hands-on algorithm learning opportunities. Pressing students to think and supporting them step-by-step in their understanding seems more effective than other approaches. For example, teaching arrays, searching, sorting and file IO (input / output) are done separately, but with a larger goal in mind. Students are told from the start that they will be making a phone book application. As the parts are taught, their usefulness in terms of the larger application is explained and illustrated. The smaller projects are demonstrated, discussed and assigned one by one. The evaluation of student understanding is constantly checked. This year the bimodal distribution of grades (understanding) still exists in my course even after the purge, but among those that stayed there was a much narrower gap between the high and the low achievers. But I digress, once fundamental pieces of working code are developed and in some cases teacher code is provided to struggling students (through tutoring), then the final larger project is assigned. Students who have grasped all the concepts struggle only a little to put the pieces together, while students who have struggled all along find the task daunting but often find partial success. Students are assigned high marks for a working program that is properly documented, or high marks for written explanations regarding their attempts at understanding and debugging (correcting broken code). Students are only assigned low marks for making little or no effort or in cases where students simply

do not exhibit fundamental understanding. Mastery learning should afford students who truly want to learn the material the peace of mind that they will eventually be rewarded for their efforts.

CONCLUSION FOR COMPUTER SCIENCE

In a high school computer science course (at a private school accredited by the Ontario Ministry of Education), Brophy's conception of a learning community can exist. But it does "not prevent" some students from leaving the community who do not feel compelled to stay. Arguably this is a "failure" of the community. Some students may simply find that they do not fit into one of the existing successful sub-groups, and perhaps never seriously believed the work would be so demanding or never seriously valued computer science skills. Others may choose to stay because they find the course material interesting, or feel some external parental pressure to stay or for some other set of motivational factors that have little to do with the community. Achieving an acceptable level of success is also an important factor. Each of these plausible causes may be considered a failure of some aspect of motivation to learn since Brophy's conception of it is wide and deep resting as it does on *expectancy x value theory*. Computer science concepts can be difficult to grasp, and for many students more than 'reasonable' amounts of effort are required to master basic skills. In Brophy's presentation of *expectancy x value* motivation, the two features must balance out (coexist) to some degree. A student may highly value computers and therefore initially desire to be a part of the class, but if he comes to feel that he has no chance of learning programming, he will probably not put much effort into learning the course material. It is vital therefore to focus student attention on a variety of insights, and master very fundamental skills before presenting more difficult concepts. Students must eventually develop successful strategies and form at least rudimentary habits of time management, attention to detail, and perseverance in the face of failure. In larger classes of twenty or more students, students must also be patient and partly independent learners. In some ways in computer science, motivation to learn is an all or nothing phenomenon.

Those students who do not adopt the necessary dispositions find other courses to pursue.

MOTIVATION AND COMMUNITY IN MATH

The gulf between those students who are considered good in math and those who are not is broad and deep. Eighth grade American Math teachers "when given ten response options to describe the 'single most challenging aspect of teaching Algebra I students successfully,' the most frequent response—by a landslide, chosen by 58 percent—was 'working with unmotivated students'" (Loveless, 2008, p. 11). According to this report when students are forced to take difficult courses for political reasons, it could be that weak students are left behind and strong students are held back. So while I have felt from time to time that an introductory computer science courses should be mandatory for all students, it appears to be no solution to low motivation at all. "Teachers report that classes of students with widely diverse mathematics preparation impede effective teaching, that too many students arrive in algebra classes unmotivated to learn," (Loveless, 2008, p. 13). Teaching advanced math concepts to Eighth Grade students with a wide range of abilities is challenging at best. John Mighton in *The Myth of Ability* proposes a promising solution to the problem. Teach math right from the start.

In reviewing Mighton's claims regarding how to teach math properly, there are startling similarities found within his methodology and Brophy's *motivation to learn* core theory. Begin with a safe environment. "I knew from my own experience how easily children could become convinced they were incapable of doing well in mathematics" (Mighton, 2007 ,p.2). Believe in your students. "A teacher who expects a student to fail is almost certain to produce a failure," (Mighton, 2007, p. 5). Work towards mastery of a subject matter, and do not focus on right or wrong answers. "Failure in this [school] system stands as irrefutable proof, even for the person failing, that one was born not to succeed," (Mighton, 2007, p. 19). At least that appears to be the perception from many students' perspective. In this way you may begin to foster a level of confidence in your students that will lead them to further success. In this system "children who are lazy or

uncooperative are often treated as if they have made a free and informed decision to receive a grade of D or F. If children are more like infants than adults, then adults, not children, should be held responsible when a child fails" (Mighton, 2007, p. 46). For Mighton, then, the total responsibility for success rests on the shoulders of the teacher just as creating a learning community and fostering motivation to learn is also for Brophy the responsibility of the teacher.

Teachers are responsible for motivating the whole class to learn. "When we make assessments of children, we expect them to see the world as we do. But their way of perceiving things is almost unimaginably different from ours," (Mighton, 2007, p.24). Therefore teach your students in discreet steps testing for mastery at each new concept. "It may seem like basic common sense to teach one step at a time, but even an experienced teacher will often compress a number of steps into one without realizing it" (Mighton, 2007, p.30). Remember, "Students should never be expected, when learning new operations, to employ knowledge or a skill that they haven't mastered" (Mighton, 2007, p. 31). In this way math teachers will have shared their insights and skills with students who through their successful application of these concepts will likely adopt the values and dispositions that will assist them in learning on their own. At present, "our schools fail to produce, in the majority of children, skills and attitudes that are essential to abstract thought. Teachers who neglect to develop these basic capacities in their students do not have a hope of succeeding with their whole class" (Mighton, 2007, p.32). In Mighton's case he leads a group of tutors and focuses on strategies very like those found in Brophy's motivation to learn.

Much of Mighton's views mirror Brophy's and so it is fitting that his words convey the difficulties of teaching at the elementary level that Brophy glosses over. "I soon learned, in my lessons with the Grade 3 class, not to underestimate how hard it is to convey information efficiently to a group of 25 children. Even in private tutorials, a task as simple as copying a symbol correctly can be hard for a child. In the classroom, where there are countless distractions, and where the teacher cannot pay attention to every student, such tasks are even more difficult" (Mighton, 2007, p.40-41). While Brophy

insists that teachers (can and should) create a learning community to support their motivational efforts there are other basic features that must be considered first. "In fact, many elementary teachers will admit to being as terrified of mathematics as their students. We would see a vast improvement in the teaching of mathematics in our schools if texts and teaching materials were written in meticulous, well-formulated steps, where teachers were shown exactly how to proceed at every point" (Mighton, 2007, p. 42). Teachers must be properly trained and receive the necessary support to teach challenging topics to a large group of students. To be fair, assuming elementary teachers are well trained in Math should be a safe assumption, regrettably it is not. Even textbooks and learning resources may not be appropriate for the task. "All of the books of elementary mathematics I have read recently seem to expect children to master concepts and operations with very little practice, after being shown only a few (or often no) examples" (Mighton, 2007, p.25). In Mighton's Junior Undiscovered Math Prodigy (JUMP) program teaching the right material, at the right pace for each student and supporting each student's learning through assessment and drill is essential for success. "Mathematical knowledge is cumulative: a child who misses a step in the development of a concept cannot go on" (Mighton, 2007, p. 20). Therefore each student must master concepts to move forward.

To support students at this level is a large undertaking, likely beyond the scope of a single teacher. "At JUMP we have found that 20 volunteers are sufficient to establish an effective tutoring program in mathematics for Grades 3 to 6 in a mid-sized school" (Mighton, 2007, p.38). In the schools which adopted this program, "in most of the classes the teacher was assisted twice a week by one or two JUMP tutors, and several students received occasional tutoring at recess" (Mighton, 2007, p.38). In many cases, Mighton "observed marked improvements in memory, concentration, and numerical ability in many students after only a month of tutoring" (Mighton, 2007, p.34). It is his opinion that "in an elementary class, the gap [in student ability] can be eliminated, or closed to a point where it doesn't affect the quality of the mathematics program, simply by using several volunteers over several months" (Mighton, 2007, p. 36). It appears that the support of several adults in elementary classrooms is more effective in regards

to teaching math than a single teacher, at least initially. This argues for a lot more teachers and helpers in the early years (grades 3 to 6). This is problematic for Brophy as he does not discuss team teaching, instead focusing on single teacher to multiple students. In short, public school elementary math classes suffer from sequencing, delivery method and resource support problems that make it difficult to imagine students being *motivated to learn*. Mighton creates a place where students learn and adults teach; a learning community indeed forged from insights and skills passed directly from adult to child.

CONSIDERING THE WHOLE PICTURE

In Jere Brophy's text *Motivating Students to Learn*, he first sets out an overview of his theory presenting his conception of a learning community as the necessary foundation from which to build further motivational strategies. It is important to note that his theory has limited scope, focusing on student motivation within the typical classroom, where he studied mainly K-8 students. In particular, a learning community (Brophy argues strongly) should support his conception of *motivation to learn* (2004, p. 51). In the second chapter of this thesis, time was spent trying to present a clear picture of Brophy's conception of a learning community. Part of the difficulty seemed to be that Brophy himself presented part of *motivation to learn theory* alongside his presentation of learning communities. This oddity, in conjunction with my experience teaching grade 11 computer science and Mighton's successful JUMP program offers a different view of the interaction between their respective learning communities and *motivation to learn*.

It seems more plausible that sufficiently *motivated to learn* students acquire insights, skills, dispositions and values as a result of good pedagogical practice. Teachers present academic material in intelligible ways which include carefully reasoned value arguments that persuade students to pursue the learning goals in such a way as to gain the intended benefits. Students who came to the class as individuals or small cliques of 3 to 9 members (Harris, 2009, p.170) are forged together by their common experience into a learning community. It seems more plausible that motivation to learn

is an educative process with one end result being the formation of a community as its product rather than the other way around. We could then ask; how do you know your motivation to learn efforts are working? One could reply that a majority of students report that they feel like they belong to a learning community. How do you know that some of your motivation to learn effort is insufficient? One could reply that some of your students are not members of the learning community but instead exhibit apathy or some other negative trait. In the case of elective courses, where no second chance to rehabilitate unmotivated students exist, this arrangement better explains the relationship between *motivation to learn* and *learning communities*. In the case of required courses such as math, this also better explains how some students may be members of the learning community (as a sub-group – the geeks) and other students are not members (at least one other sub-group – the non-geeks). The students who are not members of the learning community are either apathetic or driven by a different set of motivational goals (or they have come to see themselves as non-geeks). Harris' group theory (group differentiation) then also explains why these two groups (so quickly come to) exist, and why it is so difficult to persuade students in the apathetic group to become members of the learning community. While Brophy attributes the successful application of motivation to learn (and other motivational theories), to the creation of a learning community in at least computer science and math classes a careful examination of relevant literature and personal classroom experience, by an experienced teacher, strongly suggests that it is more plausible to conclude that the successful application of motivational theory creates a learning community out of the student body.

SUMMARY

> Independent discovery of applicable rules is so rare that to insist upon it would make rationality as scarce as handcraft. With rules as with instruments, we must usually employ those that others have made. The best we can hope for, nearly always, is to choose wisely, not to create (Max Black, "Reasonableness", in Dearden & Hirst & Peters, 1972, p. 44)

In *Reason: Part 2 of Education and the Development of Reason*, Max Black (one of the essay writers) argues convincingly that what most of us take as reasonable, we borrow

from others. In the examples given above, both computer science and mathematics require tightly connected ideas, rules and algorithms that are difficult to discover alone. Even the 'reasonable' application of these rules to problem sets – the how and when to apply these ideas – is also borrowed. Perhaps the best our education system can hope for is that students grasp these concepts, build skills while using them and gain the confidence to grow and learn independently (eventually) with the help of teachers and resources such as textbooks. When accomplishing tasks are so error prone that assistance is more effective one-on-one, large class sizes, poorly developed resources, and the pace of the course set by curriculum expectations all work against a *single teacher* to many student model. Some students, it seems, are invariably left behind and require help catching up either through teacher 'extra help' or tutoring. In the goal setting section of the text *Motivating Students to Learn* Brophy states that "Goal setting is especially effective when goals are proximal rather than distal..." (2004, p.68). Apparently, students learn better at the edges of what they already know how to do. This type of learning builds confidence as students master concepts one step at a time. Students acquire insights and skills incrementally. As they do so, they are better able to evaluate their own growing value system and through successful practice of academic activities adopt worthwhile dispositions. "Active habits involve thought, invention, and initiative in applying capacities to new aims," (Dewey, 1944, p.52-53). Therefore Brophy's motivation to learn, as supported through Dewey-like growth, *is potentially* one of the best pedagogical and motivational tools at a teacher's disposal. It is possible that other motivational strategies may be just as successful at the high school level.

It is perhaps tempting to assume that classrooms are by definition the ideal Jere Brophy learning communities, but the anecdotal evidence is overwhelmingly opposed to such a definition. Reading Brophy carefully there are textual clues that he would likely agree that classroom communities are forged not simply declared into existence. "A dependable classroom structure provides students with the information and assistance they need to enable them to learn successfully" (2004, p. 30). A dependable and safe learning environment is created by the teacher with the cooperation of the students. At the beginning of every school year, a timetable for each student is generated. Students

are sorted into classes in a variety of ways, but arguably this process is little better than random assignment in many cases. Therefore at least initially the classroom of 20 or more students is not a cohesive whole, but a collection of individual students and sub-groups of peers. Classroom management techniques, curriculum and pedagogical methods along with motivation to learn operate in tandem to create the environment and interactions that take place within that environment. As students gain confidence in their learning, and the teacher gains knowledge of each student's name, and their strengths and weaknesses a bond between teacher and students is formed. Given that students require insights and skills almost immediately when working with exacting and tightly knit subject matter such as math and computer science, it is very likely that motivation to learn plays a significant role in forging the class members into a learning community with a shared sense of purpose.

CHAPTER 5

SUMMARY AND CONCLUSION

I began this discussion by introducing the reader to Gardner's view that motivation is a crucial, yet sometimes overlook pedagogical tool. I stated without preamble that the problem of motivating students had not been ignored, exactly, but had been discussed in various ways without using the term motive or motivation. Classroom teachers have long used classroom management techniques, to create effective learning environments (or have at least attempted to create them), using various (primarily) behavioral techniques using rewards and punishments. The problems associated with intrinsic and extrinsic motivational techniques were briefly discussed, as background for a full discussion of Jere Brophy's *motivation to learn theory and his conception of a learning community*. It is important to remember that his theory has limited scope, focusing on student motivation within the typical classroom, where he studied mainly K-8 students.

Chapter 2 specifically dealt with Brophy's conception of an ideal learning community. Some time was spent detailing the ambiguity between learning communities as either a process or a product, showing that since Brophy claimed that a learning community was a necessary condition for the successful use of motivational strategies to foster student learning, the confusion was likely unintentional. In other words, Brophy clearly meant for learning communities to be a process towards motivation to learn. Yet perhaps there was another reason for the confusion. Perhaps learning communities were the product of motivation to learn theory put into practice. It was also made clear that Brophy failed to consider the role peer group socialization plays in classrooms and the challenges the uncontested traditional understanding of socialization causes for teachers attempting to foster *motivation to learn* in their students. Chapter 3 specifically dealt with Brophy's *motivation to learn* theory, while Chapter 4 offered a reflective critique of the problems of applying motivation to learn theory in math and computer science classrooms.

In this concluding chapter, I review Brophy's conception of motivation to learn theory and the methods used to critique his work in the area of motivating students to learn. A series of tentative conclusions related to the problem of applying motivation to learn in the classroom are subsequently offered. In doing so, the discussion focuses on possible implications for classroom teachers adopting motivation to learn theory for use in their classrooms and potentially important questions for future teacher research on student motivation followed by some important final thoughts.

THE PROBLEM REVISITED

As an experienced classroom teacher, frustrated with the continued lack of performance of some of my students I sought out expert advice. Jere Brophy's *Motivating Students to Learn (second edition),* offers motivational insights in a seemingly practical, workbook like approach. It shows great promise with its end of chapter reflection questions and its copious amounts of advice and examples of motivational issues found within classrooms. Brophy's synthesis of motivational theory seems to support a comprehensive motivational approach to teaching in typical classrooms. I therefore felt that a critical review of the strengths and weaknesses of Brophy's two theories: *motivation to learn* and his ideal *learning communities* would be particularly beneficial to practicing teachers in both public and Ministry of Education certified private schools.

METHOD

The method I chose in order to answer questions about the strengths and weaknesses of Brophy's theories was to pursue two parallel forms of philosophical inquiry. The first line of inquiry was very broad, reading from a variety of authors from both philosophical and psychological disciplines while focusing on what each had to say about motivation and teaching. The inquiry included Frankena (1967) writing about Aristotle, Kant and Dewey's philosophical contributions to education. It included Dewey (1938) himself writing to clarify his ideas in *Experience and Education.* It included great psychologists

Gardner (several books), Maslow (several books) and perhaps most importantly Harris's *The Nurture Assumption: Why Children Turn Out the Way They Do* (2009). Reading also included related articles that covered or used research and findings Brophy's text had treated as background research supporting motivation to learn. During this second line of enquiry one gem turned up, Thomas Good & Jere Brophy's *Looking in Classrooms,* which illuminated Brophy's ideas found in *Motivating Students to Learn.* The second line of enquiry was less obvious in the sense that it consisted of reflective consideration of my own interaction with students over the course of my primary and secondary reading research. The reflective journey, while I interacted with students and attempted to implement various features of Brophy's theory, in a high school computer science classroom, provided useful insights.

CONCLUSIONS

It is important to keep in mind that the scope of Brophy's theories is constrained to the typical public school classroom setting. He makes no claim that his *motivation to learn* theory or his ideal *learning community* is applicable elsewhere. Having provided the background to Brophy's two theories, learning communities and motivation to learn, and examining their relative strengths and weaknesses, I turn now to commenting on their viability in modern classrooms. It was argued at some length that the conception of learning communities was fundamentally flawed. In the first place, a learning community classroom could be necessary condition for further motivational efforts, or it could be considered a product of successful motivational efforts. Certainly meeting basic student safety needs through some kind of minimal classroom management technique is a minimum prerequisite for learning in a classroom. However, learning communities as Brophy imagines them go well beyond this prerequisite to include aspects of his motivation to learn theory. In the second place, his theory suffers from the historic misunderstanding of socialization, as something done to young people, rather than something they do for themselves, as Harris argues. To further complicate matters, Brophy's motivation to learn theory seems to encompass many complex

features, including advice on pedagogy while focusing on goal oriented motivational systems that support learning academic material that students must find intelligible and worthwhile. Brophy says it best:

> In one sense, these considerations enlarge and complicate the challenge of motivating your students to learn, because they extend it to include aspects of your classroom management and your instructional program. In another sense, however they simplify your motivational efforts by emphasizing that optimal instruction implies classroom management and motivational strategies and curriculum and instructional features that all function as mutually supportive components of a coherent program of effective teaching (Brophy, 2004, p. 50).

Well, Brophy never said it would be easy to implement, just worth trying to implement. After spending over two years with Brophy as a mentor in the classroom (only through reading his text repeatedly) and in my interactions with students I am forced to tentatively agree with him. His system, though complex and flawed has merit in the classroom for experienced teachers, if for no other reason than as an organized system of motivational ideas to help teachers potentially reach all their students.

IMPLICATIONS FOR CLASSROOM TEACHERS

"Most approaches to motivation fit within *expectancy x value theory*," (Good & Brophy, 2004, p. 221).

Good and Brophy's text clearly lays out the foundation of motivation to learn theory expressed in Brophy's 2004 work *Motivating Students to Learn (second edition)*. It does not clutter the reader's view by covering extensively other motivational theories. Brophy's theory statement "motivation is primarily a cognitive response involving attempts to make sense of the activity, understand the knowledge it develops ... and master the skills that it promotes," (Good & Brophy, 2000, p. 243) has not changed appreciatively since Brophy conceived of it back in the early 1980's, and the quotation from 2000, is identical to its 2004 version in the primary text under discussion. It is therefore fitting in this summary chapter to include the salient features of Brophy's theory in one place, taken from the earlier text.

> Strategies for stimulating student motivation to learn apply not only to performance ... but also to the information-processing activities that are involved in learning content or skills in the first place... encouraging students to use thoughtful information-processing and skill-building strategies when they are learning. This is quite different from merely offering them incentives for good performance later. (Good and Brophy, 2000, p. 244)

> [Students] need to process information actively, relate it to their existing knowledge, put it into their own words, make sure that they understand it, and so on. Therefore, motivating students to learn means not only stimulating them to take an interest in and see the value of what they are learning, but also providing them with guidance about how to go about learning it. (Good and Brophy, 2000, p. 244)

> Three strategies according to Good and Brophy help develop student motivation to learn as a general trait (2000, p.244): (1) teacher models their own interest in learning in all interactions with students (p. 244); (2) teacher projects to students their attitudes, beliefs, expectations and enthusiasm for learning (p. 246); (3) teachers must minimize students' performance anxiety, protecting students while they take risks in their learning. (p. 247, paraphrased)

Brophy presents his motivation to learn theory in Chapter 9 of *Motivating Students to Learn (second edition)* including it within the discussion of the value aspect of *expectancy x value theory*. Good and Brophy present this same theory under the value aspect of *expectancy x value theory* within Chapter 6 of *Looking in Classrooms (eighth edition)*. This placement allows Brophy to neatly contrast his theory with that of intrinsic and extrinsic motivational theory; since both are also located inside the value aspect of *expectancy x value theory*. Motivation to learn, however, does not fit neatly on just one side of this 'equation'. It contains aspects that satisfy both the expectancy and value requirement in arguably equal measure. How so?

Consider expectancy: teacher guidance, information processing strategies, skill building strategies, and minimal performance anxiety. Each of these features, help a student manage his expectations of successful learning. Each of these aspects, also neatly fall into good pedagogical practice. They are only motivational strategies in the sense that they help students make sense of information and successfully acquire knowledge and

skills. It is hard not to 'value' (at least to some degree) what you are good at. Expectancy (perceived competency in a given field of study) feeds a student's sense of value. In typical classrooms, the affective portion of *motivation to learn* boils down to teachers carefully avoiding activities that cause students to feel undue levels of performance anxiety where ever possible in classroom teaching.

Consider value: stimulate students to take an interest in and see the value in what they are learning through the teacher's modeling of interest, and projection of attitudes like enthusiasm. I will ignore Brophy's suggestion of socialization, since it means something other than what he thinks it means thanks to Harris. Yet Brophy clearly intends for teachers to persuade students through modeling, projection of positive attitudes and discussion to accept classroom learning activities as valuable for, as Brophy mentions, without good reasons students will not make the effort to learn the material.

With these features of motivation to learn sorted into their respective aspects of *expectancy x value theory*, it is trivial to conclude that Brophy has, perhaps for convenience sake, mis-located his theory to enable him to draw comparisons between both intrinsic and extrinsic motivational theory and his own. Yet this complexity is also helpful to the classroom teacher by providing an overarching theory of motivation. By providing a theory that encompasses both expectancy and value aspects, Brophy has provided a single conceptual framework for teachers to work with. Teachers no longer need to consider multiple (and perhaps competing) intrinsic and extrinsic motivational schemes. Well considered practical teaching methods are built into the theory that meet students expectancy needs, while at the same time the all important student question of "why bother?" is addressed through the value aspects of the theory. Motivation to learn is also goal oriented in the sense that students are to pursue learning goals to the exclusion of other (sometimes) competing goals. Brophy has made a fair attempt to ground his theory in useful teaching practice and provide a unifying theory of best motivational practice for classroom teachers.

Regrettably, it is very likely that as students grow older the transmission of values from teacher to student becomes more difficult. Simply modeling and projecting attitudes and values and even efforts to persuade teenage students becomes more difficult because these students are more sure of themselves, distracted by the opposite sex, distracted by technology (cell phones, laptops, hand-held video game machines, to name a few), and more influenced by their peer groups and the media than by teachers. The time spent with each subject teacher in high school is marginal compared with the time students spend with a teacher in elementary school, making it more challenging for high school teachers to know their students' personalities, abilities, hopes, dreams, and values, than their elementary school counterparts. Even elementary students studying something challenging (like math) will find it difficult to adopt motivation to learn. Not because the motivational theory is not sound, but because the student-teacher ratio is too high (30:1) or more in traditional classrooms. During my first year of teaching computer science (I was employed in the public education system at the time) there were 35 students and only 28 working computers in the room. Scarce resources also play a part. In any event, the ideas in math are tightly coupled together (like in computer science), and failure to understand even a single idea or failure to master a particular skill ends (very likely) in unmotivated (discouraged) students. In this situation, a single teacher cannot hope to manage the anxiety level of an entire class, or provide the required (often times individual) instruction to every student. Therefore the general student adoption of *motivation to learn* as a character trait, perhaps a set of values or perhaps a set of dispositions (if you prefer) towards learning (lifelong or otherwise) is doubtful in a typical modern classroom (public or private school). At best, individual students might find individual teachers charismatic, persuasive and worthy of their adoration and even then they may not fully model or adopt their teacher's *motivation to learn* – due most likely to other successfully competing goals or motives.

Just when you thought implementing Brophy's theory was impossible; enter Harris and her peer group socialization theory to the rescue! Classrooms are micro communities, complete with competing and disparate cliques of students in need of a group leader – the teacher – to mould them into a united community of learners! Experienced teachers

with the right pedagogical tool, *motivation to learn* which embodies both expectancy and value theory aspects, may (with skill and maybe luck) forge the cliques of students into a caring and cohesive learning machine, dedicated to getting the most out of their classroom education. This is possible through Harris' conception of leadership. As a classroom leader the teacher is able to set the norms and values of the classroom community, and indeed shape the identity of the group as a community of learners. This is achieved, I imagine, by dedication and hard work on the part of the teacher. It is impossible to create a community in secret; students must understand what is expected of them. The teacher forges the students together through the setting and adoption of common goals – learning the prescribed curriculum through classroom learning activities. The implication for classroom teachers is clear, find ways to be the undisputed leader in your classroom and set engaging learning goals, or risk being ineffective and irrelevant.

Teachers, rather than consider your learning community as a necessary condition of *motivation to learn*, consider it instead as the 'litmus test' of your motivational efforts. As you engage students in learning activities, how they respond and interact with you and their peers should provide you with indicators of success and failure. From these indicators, adjust your expectancy efforts by scaffolding and providing models (exemplars) for students to follow and aspire towards. If necessary, also adjust your value efforts by offering anecdotal stories and persuasive arguments and perhaps most importantly providing opportunities for students to participate in activities (authentic or otherwise) that make use of the knowledge and skills the students are supposed to (come to) value. This advice largely echoes Brophy's own advice throughout his text *Motivating Students to Learn (second edition).*

IMPLICATIONS FOR FUTURE RESEARCH

Since Jere Brophy conducted the bulk of his research at the elementary and jr. high school level, it is appropriate to call for more research of his theory's applicability and effectiveness at the high school level. In particular, the successful implementation of

motivation to learn is greatly affected by Harris' peer group socialization which arguably becomes even more problematic as students get older. How are high school teachers to reach (influence) all of their students given the restraints of the whole system? To name but a few of the restraints: the need to formally asses student work, prepare students for post-secondary education, cover a large amount of mandatory curriculum content, and teach to large numbers of students within a class for short periods of time. A review of Brophy's theories needs to be more concrete in its implementation details with regards to typical high school constraints on teachers and students. This is particularly important as Brophy warns "You won't be a very effective motivator if you over rely on a few techniques or try to reduce the detailed knowledge base synthesized in this book to just a few rules of thumb" (2004, p. 380). In short, researchers will need to create a clear set of rules for high school teachers and perhaps just as vital for the school administration to follow that supports a whole school culture that can implement the important aspects of motivation to learn.

Consider the view that "... any portrait of human nature that ignores motivation and emotion proves of limited use in facilitating human learning and pedagogy" (Gardner, 2000, p. 77). Also considering that motivation to learn is by definition a primarily cognitive theory of motivation, its rudimentary (and mostly ignored) affective component(s) need to be drawn out and fully considered in classroom practice. Simply put, can more be done to assist students in managing their emotions while taking risks in their learning? Given that, in math and computer programming classes with teacher-student ratios of 1:20 (in some private schools) or 1:30 (in most public schools) what are the most effective strategies for helping students manage emotional impediments (fear of failure) to learning? Perhaps just as importantly how does adoption of *motivation to learn* affect students' emotions? Brophy suggests that students properly motivated to learn out of a sense of duty fair better (are more persistent) than others. Is this due to a better emotional management strategy or does it signal a level of elevated emotional maturity, or something else? Given my recent classroom practice of *motivation to learn theory* in my own classes, I am hopeful that a careful researcher might show that

motivation to learn offers greater emotional stability to classroom students than traditional behaviourist methods of motivation.

Arguably, perseverance is a basic requirement of most learning, but this then begs the question, how does one effectively impart this character trait to students? Motivation to learn as a persistent character trait (disposition) needs further exploration. While I have lumped together for ease of discussion, character traits, dispositions and habits under a single heading these features are not all synonymous. Yet permit me the indulgence for a while longer. The building of good learning habits likely requires the elimination of bad habits. Consider weight loss, for a moment, as a metaphor for acquiring good learning habits. Consciousness is needed of both good and bad habits while losing weight. Unconscious habits are unchangeable, and often reassert themselves after the diet is over. Similarly a good teacher may instil good learning practices while a student is in class, but what prevents students from falling back into poor learning practices (not doing homework) once they leave the class? Some mechanism must be successfully employed to eliminate bad habits or at least repress them. Brophy does acknowledge that students can be driven by different goals, but mistakenly believes that traditional socialization plays a key role in changing students' dispositions towards learning. Yet this problem is not as cut and dried as Brophy presents it either. Some students are partly motivated to learn, but clearly have ways of being that distract from their reaching their full potential. It continues to be a source of frustration to practicing teachers that find genuinely capable students incapable of submitting work on time, or do not attempt to learn independently. I hold out hope that Harris' peer – group – socialization theory holds promise as a potential mechanism (teacher as leader) to set student behavioural norms. My fear is that ultimately the adoption of traits beyond the classroom context is individually selected and unique and not properly the responsibility of the teacher but that of the student. While motivation to learn can be modeled, discussed, and persuasively argued as a valuable set of cognitive tools, teenagers will make their own choices regarding what dispositions to adopt and which to ignore, or discard once they leave the classroom. A longitudinal study that follows a set of students from grade 9 to 12 is highly recommended to explore

the persistence of habits engendered in a Brophy style learning community in grade 9 with the same students four years later in a classroom with a teacher unfamiliar with motivation to learn theory. A similar study would be worth investigating at the elementary level.

FINAL THOUGHTS

The serious flaws in Brophy's conception cannot be ignored. Like the "Chicken or Egg" problem, learning community or motivation to learn, which came first? Teachers who follow Brophy's advice are in danger of failing to implement crucial motivational strategies by wasting time worrying about whether or not their classrooms are ideal learning communities as Brophy insists they must be to instil in students a sense of community and motivation to learn. As I have indicated, the failure to form a learning community may be only a symptom of students not adopting motivational efforts, for a variety of reasons. Some of those reasons very likely stem from conditions beyond a classroom teacher's control. Remember, Brophy's theory of motivation was designed to answer the question of how to motivate students to learn academic material delivered by teachers within typical public school classrooms.

Brophy's tone is far too hopeful for pre-service teachers who might read his text as part of their preparation in Faculties of Education. Implementation of worthwhile and meaningful content that provides depth over breadth requires a level of maturity perhaps only gained through actual years of classroom experience.

> Your attempts to deemphasize extrinsic incentives or competitions may be resisted by students, parents, or administrators ... To prevent such external pressures from having similar effects on you, you will need to develop sufficient confidence in your efficacy as a teaching professional to enable you to exercise some autonomy in setting goals for your students. (Brophy, 2004, p.391)

His short and off-handed, and well meaning, commentary on this belief belies the many difficulties beginning teachers can experience when they do try and swim against the

stream. Teachers are honour bound to teach the Ministry approved curriculum with a set of approved resources. If a school board bans a topic or book a teacher must abide by the rules. My contribution to this delicate topic is to have your department head's blessing before implementing any counter cultural ideas in your classroom. Putting aside the 'fear mongering' in the previous statement, a clash of cultures between teacher and students cannot be dealt with using Brophy's re-socialization techniques, but importantly may be better understood from a Harris peer-socialization perspective. Another fact which is glossed over by the sheer complexity of Brophy's theory, is that teachers who are authoritative will likely find Brophy's advice easier to digest than those who are not (those that are authoritarian instead). "Authoritative socialization practices are optimal in the [North American] classroom as well as the home," (Brophy, 2004, p. 30). Harris warns that data that conflicts with this interpretation are often ignored. In fact Asian-American parents use the Authoritarian practice and "in many ways Asian-American children are the most competent and successful of all American children" (Harris, 2009, p. 47). Arguably Brophy's advice is for North American teachers, but his reliance on Baumrind is problematic as is his linking of authoritative teaching with 'immediacy' methods. While, "immediacy behaviors increase students' liking for the instructor," (Brophy, 2004, p. 31) this does not mean that making eye contact and smiling at your students is restricted to only authoritative teachers. It is, perhaps regrettably, good to 'lay down the law' from time to time as most experienced teachers will tell you – rationalizing with your students regarding their misbehaviour is often a waste of precious classroom time. Attempting Brophy's 'just right' method this year (2010 – 2011) in a mixed gender class of TGJ2O (communication technology) students, the boys largely misbehaved and ignored polite 'just right' requests for their attention. Speaking with each of their parents made a markedly better impact on their behaviour. I got the distinct impression from the students' sullen looks (four boys in total – a Harris clique) that some of their parents did not hold to the 'just right' view of parenting. From a leadership perspective, it is likely more important that students respect and follow you, than always like you. Judicious use of 'other' methods of classroom management strategies can be beneficial when the circumstances dictate.

Finally, not all average students are capable of reaching the learning goals set out in Ontario Ministry of Education curriculum – at least not in the time and space allotted. Note, I am not arguing that special needs students are not capable, instead I am arguing that perfectly healthy and well adjusted students (high functioning young people) are not capable. Arguably these goals offer broad interpretation, but as see in Mighton's discussion of math tutoring and the JUMP math program, many (otherwise bright) Ontario students are not very capable of learning math at the pace set by the Ministry of Education. There are many limitations set on teachers and the limitation of time, in particular, only gets worse in high school. "The best teachers prove able to cope with these limitations ... but even these teachers are hindered in ways that a master or tutor working in a one-on-one situation would not be" (Gardner, 2011, p. 150). Gardner calls for "an education that yields greater understanding in students" (2011, p. 157), in that common misconceptions held by the vast majority of students (even very successful ones) are challenged and replaced with those understandings commonly held by the masters of whichever discipline applies. Brophy calls for teachers to set learning goals that students can reach. Brophy calls for educators to choose depth over breadth; more importantly, to choose meaningful and worthwhile academic activities that potentially lead to ideal learning communities. This call requires teachers to be masters of their subject matter (their discipline) and likely few experienced high school teachers will be capable of implementing Brophy's motivation to learn advice without serious modification to the theory's implementation details and allowances for the intractable high school cultures in which they often teach.

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